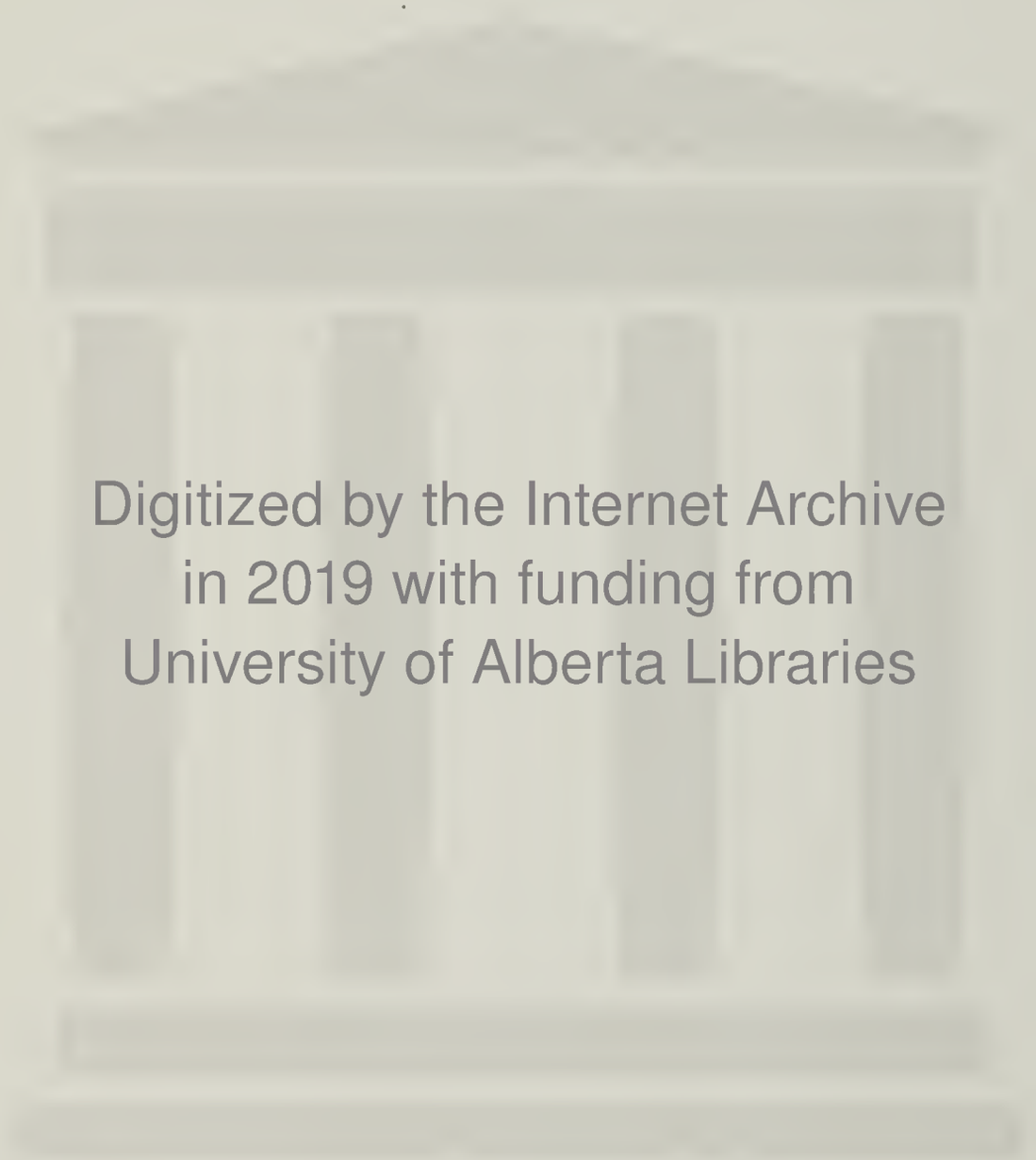

blue jay

March, 1976

Blue Jay

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BLUE JAY

Vol. 34, No. 1 March, 1976 Pages 1-64

TABLE OF CONTENTS

* * * * *

ADDENDUM TO DECEMBER, 1975, ISSUE

Dr. Lane Memorial: Honorary degree was conferred by Brandon University, not University of Manitoba (p. 196).

Metalmark photos on p. 198 were by Ron Long, not by Ronald Hooper.

Indian Pipe *(Monotropa uniflora L.)* Fir River, NW of Hudson Bay. Wayne C. Harris

ERNEST THOMPSON SETON'S SASKATCHEWAN HOMESTEAD

By C. STUART HOUSTON, 863 University Drive, Saskatoon, Sask.

Three generations have been raised on Ernest Thompson Seton's animal stories. My father remembers that the stories of Raggylug, Redruff, Silverspot and Lobo were among the first stories his mother read to him. My mother read the same stories to me and I in turn read them to my four children. Yet none of us then appreciated that Seton had homesteaded in what is now Saskatchewan, just 50 miles from Yorkton. Few naturalists have realized that Seton's nest of the Philadelphia Vireo, the first authenticated nest of the species ever reported, is a Saskatchewan, rather than a Manitoba, record.

Born Ernest Evan Thompson in South Shields, at the mouth of the River Tyne, on 14 August, 1860, his family emigrated when he was 6 to a backwoods farm near Lindsay, west of Peterborough, Ontario. His father, a nearly bankrupt shipowner, was no more successful as a farmer, and in 1870 the Thompsons moved into Toronto. Ernest attended Toronto Collegiate and then the Ontario School of Art, where he won the gold medal. After 2-1/2 years studying art in London, England, he returned to Canada in the fall of 1881, having assumed the ancient family name of Seton on his 21st birthday.

On his return to Toronto, two events greatly influenced his future. First, he purchased a copy of Coues' *Key to North American Birds*. Second, he became a friend of William Brodie, Jr., and fell under the influence of Willie's father, Dr. William Brodie, who later gave up dentistry and became Ontario's first provincial naturalist as well as biologist at the Ontario Museum. Dr. Brodie told Seton that he should keep a daily journal. His apt pupil began at once and the first entry was: "Toronto, Ont., Monday, 13 Nov. 1881: Saw three robins over the White Bridge."

Early in 1882, Seton left Toronto on a farmer's train for Manitoba, via St. Paul, Minnesota, with his friend Willie Brodie. On 3 April, Seton reached his brother's homestead, less than a mile north of the temporary station of De Winton, which was replaced by the permanent station of Carberry, nearly 2 miles further west, the next year.

Seton later said that "my real journal and my real life were begun in Manitoba." Those were the days of free homestead land and Seton wished to file for a homestead. He made a long trip in May south to Turtle Mountain with his two brothers, Arthur and Charlie, and another long trip in July to Russell and the Upper Assiniboine with Arthur and Walter, another brother, both times without finding a homestead that met his requirements. Meanwhile, his observations and experiences around Carberry were faithfully recorded and later formed the basis for the story of "Bingo" in *Wild Animals I have Known*, and for his book, *The Trail of the Sandhill Stag*.

In March, 1883, Seton had surgical repair of a hernia in Chicago. In June, near Carberry, he found the first nest ever reported of the Connecticut Warbler, duly reported in Vol. 1 of *The Auk* in 1884. A. C. Bent in his *Life Histories of North American Wood Warblers* (1953) gave Seton full credit and stated that this was the only documented nest of the species for another 40 years, though Bent overlooked John Macoun's nest found in the same swamp south of Carberry, 12 June 1896.

From *Ecology of the aspen parkland of western Canada in relation to land use.* R. D. Bird, 196

Seton's young friend, Willie Brodie, unfortunately drowned when his canoe upset on the Upper Assiniboine in May, 1883, but in July and August that year Seton was stimulated by a long visit from a young naturalist from England, R. Miller Christy. On 8 and 9 August, the two men together visited the Criddle family, who had settled at Aweme, near the Assiniboine southeast of Brandon, the previous year. Seton and Christy gave lessons in trapping and bird skinning to the Criddle sons, Norman and Stuart, both of whom became well known naturalists.

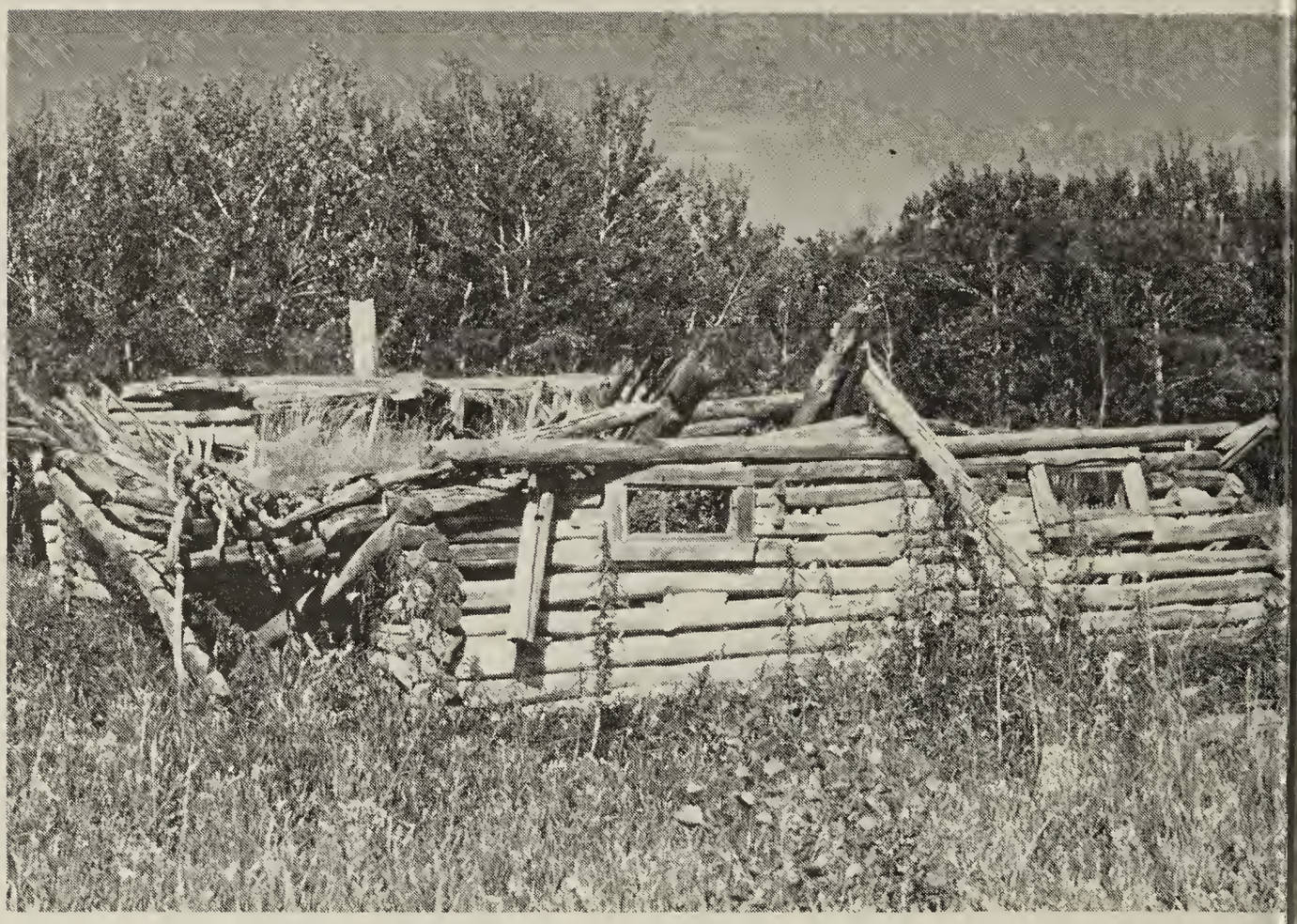
Seton's third trip to seek a homestead began with two friends, John Duff and George Richardson, on 1 October 1883. They passed Shoal Lake village 4 October and reached Big Boggy Creek on 9 October, crossing the western boundary of Manitoba which had been extended to its present location only 2 years before. On 11 October, Seton chose his homestead quarter and the adjacent pre-emption quarter on the south half of Section 36, Township 28, Range 31 west of the Principal Meridian, in the District of Assiniboia, Northwest Territories. He chose the north half of Section 36 for his brother, Arthur. This section is just a mile southwest of the present hamlet of Runnymede, Saskatchewan, 1 mile east of the Assiniboine River valley, and less than a mile west of a parallel coulee, now officially named Seton Coulee in his honor. Obviously some geographer knew more of Seton's history than any of the local residents we talked to when all three Houston generations made a pilgrimage to the Seton homestead in 1975.

Seton always spoke of this homestead as being on the edge of the Duck Mountains, which indeed were only 4 miles to the north. That fall he recorded a Great Horned Owl hooting at his homestead and a Peregrine Falcon in migration. He did not visit Madge Lake, 12 miles away, but he did visit the Hudson's Bay Company post of Fort Pelly, on the Assiniboine River 24 miles northwest of his homestead, on 16 October. He registered his homestead and pre-emption at the land office at Birtle on 25 October and reached Carberry on 29 October.

Seton spent 4-1/2 months working as an artist in New York City that winter and did not return to Carberry until 28 April, 1884. He stayed with his brother Arthur until 2 June, when they set out for their homestead by horse and wagon. On 4 June they passed through Shoal Lake village and on 6 June they travelled from Binscarth to Assessippi on the Shell River, where a new mill and hotel had attracted 300 pairs of Cliff Swallows beneath their eaves. They arrived 8 June at the homestead and the next day dug their well, 2 feet wide and only 4 feet deep, near the bank of a small stream, from which the well received its water. This was the day that Seton discovered the Philadelphia Vireo nest. He waited until 13 June, when the female began incubating her four eggs, before collecting her to confirm the identification. This nest, 10 feet from the ground in a willow, was either on the homestead or very nearby. A. C. Bent in his *Life Histories of North American Wagtails, Shrikes, Vireos and Allies* (1950) told how this was the only nest known for another 19 years, but incorrectly gave the locality as Manitoba.

On 10 June, 1884, Ernest and his brother Arthur began cutting and hauling timbers for their claim shanty. Fourteen logs 8 feet long and another 14 logs 12 feet in length made the 8- by 12-foot claim shanty. The cutting and trimming of these logs required until 14 June and on 17 June they had the shanty finished with roof and door. The spaces between the logs were blocked with split strips of wood, nailed in and plastered over from both sides with tempered mud. The roof was made of prairie hay one foot deep, topped with 6 inches of clay. Finally, he carved in the lintel over the door: "E. T. Seton, 1884".

Seton used well what little spare time he had. On 8 June, 1884, he found the nest and eggs of a Redstart, studied the Yellowthroat in low damp thickets



This log structure is near the centre of the southern edge of Seton's homestead section, bu was probably constructed at least 20 years after Seton's homestead cabin. 1975.
C. S. Housto

and recorded White-rumped Sandpipers. On 10 June, he collected a male Myrtle Warbler and identified the Black-and-white Warbler and the Solitary Vireo. On 11 June, a young Gray Jay was collected and a Tennessee Warbler was seen, the latter to be collected the following day together with a male Olive-sided Flycatcher. Also on 12 June, he shot a Western Wood Pewee, frequenting the open woods and willow thickets, while on 14 June, he collected an Eastern Wood Pewee from the thicker woods higher on the slopes of Duck Mountain. On the latter day he also found one or two pairs of Connecticut Warblers resident in a nearby tamarack swamp and found three or four nests of the Clay-colored Sparrow in 1 or 2 hours.

Seton found a nest of the Red-necked Grebe at a small lake and a Ruffed Grouse gave a spirited distrac tion display, though he found neithe nest nor young. He listed the Buffle head, Sora Rail, House Wren, Cat bird, Nashville and Chestnut-side Warblers, Common Grackle and th Leconte's, White-throated and Son Sparrows as breeding, with the Fo Sparrow as "evidently breeding." H also recorded the Horned Grebe Turkey Vulture, Sharp-tailed Grouse Common Snipe, Great Horned Ow Eastern Kingbird, Yellow-bellie Flycatcher, "Acadian Flycatcher" [a error, though a specimen was collec ted; perhaps a Traill's], Short-bille Marsh Wren, Veery, Cedar Waxwing Solitary Vireo, Warbling Vired Mourning Warbler and Baltimor Oriole. He was most surprised not t find a single junco during June. H listed the Red-throated Loon in h 1886 list, but evidently recognized hi

Seton Coulee, looking north to the elevators of Runnymede. 1975. C. S. Houston

error and dropped this species from the 1890 publication.

Obviously, Seton mentioned only those species that were unexpected or of special interest, omitting any mention of common and expected species such as the robin and most ducks.

Seton and his brother failed to complete the work necessary to comply with the formalities of the homestead laws, especially as regards the 3 acres of land that each was required to plough. They had run out of oats for their horses and realized that the crops on the farm near Carberry would be needing attention. On 20 June they travelled north, forded the Assiniboine and visited the western portion of the Cote Indian Reservation. They then turned south along the west side of the Assiniboine, crossing the ferry at the mouth of the Shell River, apparently on 22 June, when they recorded Baird's Sparrows. They reached Shoal Lake on 24 June and Carberry on 26 June. Neither Ernest nor Arthur ever visited their homestead again and thus each forfeited his right to ownership of the land.

Seton helped with the farm at Carberry into mid-winter, leaving Carberry 27 January, 1885. From February through mid-September he worked on his bird notes at his parents' home in Toronto, completing his paper on *Birds of Western Manitoba*, which was published in *The Auk* in April and July, 1896, and doing much of the preliminary analysis for the more comprehensive work that was to follow. He then went to New York, where he obtained a contract to produce 1000 drawings for the *Century Dictionary*, at $5.00 apiece. He worked on this through 1886, returning to Carberry only from 26 October, 1886 through January, 1887, when the snowshoe hares happened to be at peak numbers.

Seton spent the next 3 years near Port Credit, Ontario, where his brother Joseph had a small farm. Here he wrote his most famous animal stories and completed *The Birds of*

Manitoba, which was published by the Smithsonian Institution in late 1890, after he had left for Paris to continue his studies in Art.

Seton's last significant sojourn was in the summer of 1892 after his return from Paris. His brother Arthur was no longer on the farm, but Ernest stayed at a boarding house in Carberry from 4 June to 12 September, noting the changes in bird life that had occurred as the country became intensively farmed. His favorite body of water, Shaska-water, named for his Indian friend, had been drained, aspens were springing up everywhere as the prairie fires were controlled, and the evergreens in the sandhills south of Carberry had filled in the gaps caused by previous fires. He reported that the beautiful prairie flowers had been replaced by Canada thistle, Russian thistle and tumbleweeds along the fence lines. The Upland Sandpiper, the Chestnut-collared Longspur and the Sprague's Pipit were gone, as the prairie had succumbed to the plough. The Thirteen-striped Ground Squirrel had greatly decreased, while the Richardson's Ground Squirrel had increased. Sharp-tailed Grouse were restricted to the woods, but the new immigrant from Minnesota, the Pinnated Grouse or Greater Prairie Chicken, was now everywhere.

Seton described the above changes in a paper published in *The Auk* early in 1893. Meanwhile, he helped gather specimens of birds to be shown at the great Chicago Fair of 1893 and in return persuaded Premier Thomas Greenway that he should be appointed as official naturalist to the government of Manitoba. The interview took place in Toronto 19 September, 1892 and the writ appointing him as naturalist [kindly copied by Ardythe McMaster], and signed by Greenway as Minister of Agriculture and Immigration, was dated 4 November, 1892. [Note that the date for this appointment given in the introduction to the 1975 reprinting of *Birds of Manitoba* was 9 years premature]. The title carried no pay, but was used proudly by Seton for many years.

The story of Seton's name is very complicated. His eight articles in *The Auk* in 1884, 1885 and early 1886 were under the name of Ernest Evan Thompson Seton. As stated above, this was the name he had adopted on his 21st birthday, 14 August, 1881, completing the "necessary formalities" and assuming the "full and proper legal style" only on 1 February 1883. Later, in the brief addendum to his "Birds of Western Manitoba" in the October 1886 issue of *The Auk*, he reverted to the name of Ernest E. Thompson and stated that: "Hitherto I have written under the assumed name of 'Seton'; henceforth I shall write and be known only by my true name [Ernest E. Thompson]." Yet to confuse his readers further, his two articles on new species of caribou in the *Ottawa Naturalist* in 1899 and 1900 were under "Ernest Seton-Thompson."

In his autobiography, he explains that he adopted the *nom de plume* of 'Seton-Thompson' to please his mother and that on her death in 1897 he was free to resume "what was really my legal name [Seton]." On 28 November, 1891, the Supreme Court of New York rendered its decision on this now complex and knotty question and decreed that 'Seton-Thompson' was a *nom de plume* and that 'Seton' was his legal name.

As far as we know, from the book, *By A Thousand Fires*, published by his second wife after his death, Seton's last visit to Manitoba was during a lecture tour in 1924. He went by car 50 miles from Ninette to Morden and "did not see one wild living creature". On the train between Swan River and Gladstone, he overheard four men talking of the 400 Sharp-tailed Grouse they had shot the previous year and wondering why grouse were scarce that year. Grandiloquently, Seton then told the Canadian Club in Ottawa: "We have desolated our heritage, absolutely devastated these wonderful wilds. We have robbed our children. We have robbed our country."

1974 PLANT RECORDS FROM SASKATCHEWAN; REDISCOVERIES, DISCOVERIES AND OTHER CURIOSITIES

By JOHN H. HUDSON, W. P. Fraser Herbarium, University of Saskatchewan

The summer of 1974 was even more fruitful of botanical finds for me than the summer before. Treated here as finds are three plants apparently new to Saskatchewan, two confirmations of ancient records, and nine others which are either range extensions or at least rare enough to merit mention. Perhaps the rediscoveries, that is, confirmations of old records for Saskatchewan, could be treated first, since they gave me more joy than did even those for which no earlier report existed.

Halimolobos virgata (Nutt.) O. E. Schultz. J. H. Hudson No. 2902, 1 June 1974, dry sandy slightly disturbed but grassy flat, Camp Can-ta-ka-ye near Birsay, NW1/4 18-24-VI W3rd; J. H. Hudson No. 2909, 9 June 1974, dry eroded south-facing silty slope on overgrazed prairie with high development of winter annuals, Riverhurst Ferry, SE1/4 5-23-VII W3rd. Also seen 15 June near gravel pit on SE1/4 12-26-X W3rd, south of Macrorie. This plant was collected by John Macoun at Twelve Mile Lake and at Sucker Creek (Cypress Hills) in 1895 and reported by his son, J. M. Macoun (1895); there do not seem to be any subsequent reports. Presumably it has been passed over because of its extreme likeness to many of our species of *Arabis* (Rock Cress). In life, it is almost indistinguishable from *Arabis retrofracta* or *A. divaricarpa* except for having erect pods upon divergent stalks; then, too, the somewhat smaller and whiter flowers open while in a terminal position at the tip of the stem. At least in *Arabis retrofracta*, only unopened flower buds are found at the tip of the stem; the flowers blossom after growth of this tip has left them behind in a lateral position. I would not have recognized *Halimolobos* (there is no common name) had I not memorized the drawing in *Flora of the Pacific Northwest* by Hitchcock, et al (1964), having learnt from Boivin (1968-1969) that it had been found in Saskatchewan. The report in Breitung (1957) is a conglomeration of citations of this plant and of *Arabidopsis glauca* (Nutt.) Rydb. [= *Thellungiellia salsuginea* (Pall) O. E. Schultz] to which the common name Mouse-ear Cress properly belongs. Breitung's citations from Vawn, Mortlach, and Sutherland are of this *Arabidopsis*; the Vawn sheet is in the Fraser Herbarium and the Mortlach and Sutherland collections are my own.

I'd like to add that the Camp Can-ta-ka-ye find came about as a result of being prevailed upon by Mary Houston to go down and help lay out nature trails for the Girl Guide camp there. After the trail laying was over, I botanized and found this *Halimolobos*, which goes to show that virtue occasionally does get rewarded.

Carex pedunculata Muhl. J. H. Hudson No. 2916, 16 June 1974, abundant in dense moist aspen woods 6.2 mi. N. of Hudson Bay Junction, 52° 57' N. and 102° 23' W.; J. H. Hudson No. 2932, 17 June 1974, occasional in rich cut-over woods west side Little Armit Creek, 52° 43' N. and 101° 48' W. This small woodland sedge was collected by Sir John Richardson at Cumberland House, presumably in the 1820's (no

Woodland Trail, Prince Albert Park. J. B. Gollop

date on label). Dr. B. Boivin of the Biosystematics Research Institute, Ottawa, in 1969 sent me a photograph of the sheet as preserved in the Gray Herbarium of Harvard University. At the time I thought it odd that the plant hadn't turned up in Saskatchewan during the following 150 years, and wondered whether Richardson at the time had not been in what is now Manitoba. It is, of course, widely distributed in the eastern woodlands, extending west to Manitoba — Scoggan (1957) cites three locations there.

The first find of this year's trio of plants new to Saskatchewan was *Chorispora tenella* (Pall.) D. C., J. H. Hudson No. 2913, 9 June 1974, solid stands in summerfallowed field on fine sandy loam, L.S.D. 12 in 28-34-VIII W3rd, east of Delisle on Highway 7 and one mile west of the Cominco Potash Mine access road. This winter (?) annual weed of Eurasian origin may be identified at once as being a mustard with mauve flowers 1 cm diam., the colour of those of Indian Pink (*Cleome serrulata*), and further by the long-beaked pods, constricted between the many seeds, but indehiscent like those of a radish. Since Hitchcock (1964) says of it, "widely established in much of the more arid parts of the Pacific Northwest", and Boivin (1967a) attributes it only to British Columbia, one presumes this one has come in from the west. The infestation was seen from the car as a cake of green with pink icing looking like a solid stand of Indian Pink, but second thoughts informed me that it was too early for Indian Pink, and that I'd better stop and examine it. Later on the farmer worked the field and sowed oats. This spring the infestation was again in full flower, but then he summerfallowed the field.

Another novelty found this year was *Viola pubescens* Ait. var *leiocarpa* (Fern. & Wieg.) Boivin, J. H. Hudson No. 2931, 17 June 1974, moist rich soil under Ostrich Fern on old flood plain of Little Armit Creek, 8 miles S. of Armit, 52° 43' N. and 101° 48' W. This leafy-stemmed forest violet looks much like the common *V. rugulosa*, Western Canada Violet, but for the flowers being yellow. It is of eastern distribution but Scoggan (1957) cites many Manitoba records.

With uncertainty is reported *Viola blanda* Willd., as J. H. Hudson No. 2924, 17 June 1974, alder swamp, 14.9 miles south of Armit, 52° 38' N. and 101° 48' W. The material is a stemless violet, the leaves more or less uniform, the petals white — the lower three with purple lines. It would have been assigned without a second thought to *V. renifolia*, Kidney-leaved Violet, if it had not possessed long thin rhizomes, On keying this in Boivin (1967b) one gets to *V. blanda* Willd., with which he has merged *V. pallens* (Banks) Brainerd. Scoggan (1957) kept these two separate (as do the standard eastern floras) and gave several citations of both from Boreal Forest points in northern Manitoba. The occurrence of violets of this sort at Armit is hence not surprising.

Now to begin the list of plants previously reported for Saskatchewan but of which records may be of some interest. I picked up *Anemone quinquefolia L.* var *interior* Fern. twice in this fruitful Hudson Bay Junction area: J. H. Hudson No. 2921, 16 June 1974, rich mixed forest 6.2 mi. N. of H.B. Junction, 52° 57' N. and 102° 23' W.; J. H. Hudson No. 2930, 17 June 1974, in moist rich soil under Ostrich Fern on old floodplain of Little Armit Creek, 8 mi. S. of Armit, 52° 43' N. and 101° 48' W. This eastern anemone looks much like a half-sized Canada Anemone (*A. canadensis*) except that the whorl of stem-leaves comprises 3 or 4 stalked leaves which are each made up of 3 fully separate leaflets. The plant has been reported from Somme, Saskatchewan, by Breitung (1957) and ranges widely eastward from there.

In this same general area, showed up *Sambucus racemosa* L. var *pubens* (Michx.) Watson, Red Berried Elder, as J. H. Hudson No. 2929, 17 June 1974, along banks of Little Armit Creek 8 miles S. of Armit in 52° 43' N. and 101° 48' W. This is a large shrub

From Spy Hill (SW6-19-30W1) looking west toward Spy Hill village. 1958.
J. H. Hudson

with cream-coloured flowers, well known in cultivation. Wild material was reported by Fraser and Russell (1944) from 60 miles northeast of Nipawin; the Fraser Herbarium has also a sheet from Madge Lake.

Other oddities from various locations in the province were:

Hypoxis hirsuta (L.) Cov., Hairy Star Grass, J. H. Hudson No. 2947, 30 June 1974, moist meadow between aspen bluffs with slight groundwater influence, N.E. cor. S.W.1/4 6-19-XXX W1st, near Spy Hill. This species was reported by Breitung (1957) from Buchanan and Yorkton; the Fraser Herbarium has the specimens, which are over 50 years old. It is a small stemless plant bearing long hairy grass-like leaves from a bulb and a cluster of a few dime-sized yellow flowers on a naked stalk also directly from the bulb.

Drosera linearis Goldie, Linear-leaved Sundew, J. H. Hudson No. 2958, 7 July 1974, very wet quaking calcareous bog, SW1/4 11-47-III W3rd, Garthland P.O. area (west end of MacDowall Forest reserve).

Drosera anglica Hudson, Oblong-leaved Sundew, J. H. Hudson No. 2959, same time and place as J. H. Hudson No. 2958. These two sundews differ from the common *D. rotundifolia*, Round-leaved Sundew, in leaf shape as the common names indicate. They also differ from *D. rotundifolia* in habitat, being out in the wet calcareous bog rather than on lumps of sphagnum moss under black spruce. From one another they seemed not to differ in habitat, yet intermediate leaf shapes were not seen. Breitung (1957) reported collections of both species from Prince Albert and McKague. *Drosera anglica*, however goes much further north in Saskatchewan than *D. linearis*, as it has been collected on the south shore of Lake Athabasca by Argus (1968) and in the Patterson-Hasbala Lakes area in the extreme northeastern corner of Saskatchewan by Argus (1966).

Carex buxbaumii Wahl; J. H. Hudson No. 2966, 11 July 1974, moist road ditch where road cuts through marly groundwater seepage area on west side Assiniboine River Valley, S. edge S.E.1/4 22-33-IV W2nd, east of Tadmore. This rare sedge was previously known from nine stations in the Boreal Forest from Candle Lake northward, but this station is much further south in Saskatchewan. In this area groundwater seepages forming springy marl bogs may be recognized from afar by the presence of isolated stands of black spruce. I found also *Liparis Loeselii* (L.) Richard, Bog Tway-blade, around a pool in the wettest part of the marl bog here.

Scirpus clintonii A. Gray, Clinton's Rush, J. H. Hudson No. 2979, 14 July 1974, clearing in dry sandy woods of pine and black spruce, at height of land on No. 4, 31 miles north of Glaslyn, 53° 47' N. and 104° 25' W. This species was reported by Breitung (1957) from Meadow Lake, the collection having been made by him in this

same "Height of Land" area. The plant looks much like *Scirpus cespitosus*, Tufted Club-rush, but grows in dry woods rather than wet bogs.

Juncus stygius L. var *americanus* Buch., American Bog Rush, J. H. Hudson No. 3036, 15 September 1974, very wet marl bog in not quite the wettest spots, SW1/4 11-47-III W3rd, Garthland P.O. area. This circumpolar plant of disrupted boreal to subarctic range has earlier shown up in Saskatchewan only near Lake Athabasca, both on the north shore (Raup, 1936) and on the south shore (Argus, 1968). It may be recognized by being a rush with one or two heads containing two or three capsules apiece, these capsules being oversize — to 8 mm long — in comparison with the commoner species. In this bog, from which came also the Sundews mentioned earlier, were also found *Rhynchospora alba* (L.) Vahl. and *R. capillacea* Torr., our two species of Beaked-Rush. I had collected the latter in a bog west of Mennon; the former I had not encountered before.

Malaxis paludosa (L.) Sw., Bog Adder's-Mouth, J. H. Hudson No. 3039, 15 September 1974, moist shady glade in black spruce woods, L.S.D. 14 in 2-47-III W3rd, Garthland P.O. area. A small and inconspicuous little orchid, of which I found only one plant — hence no duplicates can be distributed. Normally I don't collect a specimen if there is only one to be seen, but this one was collected with *Malaxis monophylla* (L.) Sw. var *brachypoda* (Gray) Morris & Eames, Adder's-Mouth, (J. H. Hudson No. 3040) and was recognized as different only during the pressing process. These two orchids are our smallest: *M. monophylla* is about 10-15 cm high, with one bulb, one elliptic sub-basal leaf a few cm long, and a spike of yellowish flowers about the size and shape of dead fruit flies; *M. paludosa* is perhaps smaller, with two or more bulbs in tandem, about two basal leaves and similarly unimpressive flowers. *M. monophylla* has been reported by Breitung (1957) from Waskesiu Lake, and also George F. Ledingham and I collected it at MacDowall in 1952. *Malaxis paludosa* is not mentioned by Breitung, but Boivin (1967a) placed Saskatchewan within its range on the basis of collections unknown to me. The scarcity of reports is likely due to the exceedingly great difficulty of seeing these minute orchids. Fall is the least unfavourable time to spot them, as the tiny (2-3 mm long) capsules turn yellow-green, while the leaves wither to quite a pale colour.

Duplicates of all of these collections except No. 3039 have been deposited with the W. P. Fraser Herbarium at the University of Saskatchewan. The fourth set of my 1974 collections, which should include most of the above numbers, went to Dr. Ledingham at the University of Regina. The third set (which should include all but No. 3039 and No. 2924) has been sent to the Biosystematics Research Institute of the Canada Department of Agriculture in Ottawa.

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THE 1940 GRASSHOPPER OUTBREAK IN SOUTHWESTERN SASKATCHEWAN

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By 1939, the decade of drouth, dust storms and grasshoppers was approaching an end in Saskatchewan. During this period most of the grasshopper problem was attributed to local population increases of two species, the migratory grasshopper, *Melanoplus sanquinipes* (Fab.) and the clear-winged grasshopper *Camnula pellucida* (Scud.). However, Saskatchewan grasshoppers had periodically been reinforced by immigrations of the migratory grasshopper, long known to us by the nick-name "mex", derived from the former name, *M. mexicanus* (Sauss.). Poison bait was an important element in the overall grasshopper control strategy and record quantities of it were applied that year. The bulk carrier in this material was sawdust, enriched with a little low-grade wheat flour, and poisoned with sodium arsenite, a rather nasty, caustic hazardous poison.

Early in July of 1939, my first summer with the old Dominion Entomological Laboratory, inward flights of the migratory grasshopper began on a broad front, but, for the most part, nothing serious had followed in terms of egg deposits. However the area south of the Cypress Hills and west of the Frenchman River proved exceptional. H. A. McMahon from our Laboratory made an egg survey there after the adult grasshoppers had long gone, and found stubble fields impregnated with an unusually large number of eggs, about 90 per sq. ft. The area later appeared on the forecast map in red, to represent the highest category, "Very Severe". But even that turned out to be an understatement. In this area, only 15 to 20 per cent of the land was under cultivation, the rest being rangeland. Since the migratory grasshopper generally avoided laying eggs in rangeland and fallow, the result was a concentration factor of 5 or 6 in the stubble. Because the eggs had been deposited early, most had probably reached maximum embryonic development before winter arrived, setting the stage for maximum impact the following year.

The spring of 1940 began favourably in the southwest. Soil moisture was unusually plentiful and prospects for a crop were good. Growers sought to make the most of this by sowing new crops on last year's stubble, a practice long recognized by entomologists as a poor policy when grasshoppers threatened. Good moisture supplies tend to mitigate the destructive potential of a grasshopper infestation, but because this was a case of super saturation in stubble the usual principles didn't apply. Grasshopper hatching was about in phase with the development of the young crop. The hatchlings boiled up out of the soil and easily devoured whatever was at hand. Larger now, they moved quickly to attack crops becoming established in fields fallowed in 1939. Having devoured them, the still unfledged nymphs in some cases marched deeply into the grassland.

In one field Dr. R. H. Handford, then of our laboratory at Brandon, and I watched the late Mr. S. H. Vigor, Field Crops Commissioner for the Saskatchewan Department of Agriculture, approach us. He was

Adult migratory grasshopper (left) and clearwinged (right).
Agriculture Canada, Saskatoon

trudging across the field in his breeches and high boots — we all wore the bring'em-back-alive uniform in those days — exclaiming "It's hopeless, simply hopeless".

The growers in this area had been left out of the mainstream of grasshopper outbreaks in the immediately preceding years, and remained a little complacent about preparations such as provision of bait spreaders. But now they reacted with their usual ingenuity to improvise machines and began to fight back with all they had. Local and provincial officials had also taken a somewhat relaxed attitude toward the forecast and had been conservative in laying in sawdust supplies beforehand.

The stocks now began to disappear at an alarming rate, and it soon became evident that the visible supply would fall far short of demand. Officials responded quickly; there was plenty of sawdust at sawmills in the north, but it was now the wrong time of year to move it to railheads. There was surplus sawdust at other points in the farming area, but one doesn't move hundreds of carloads of sawdust by rail overnight. For a time the farmers were short of ammunition. Then supplies of bait began to flow again and many growers continued the struggle with amazing tenacity. A little more than 600 carloads of sawdust were supplied in Saskatchewan that year, and at

Vehicles waiting to pick up grasshopper bait at Eastend, Saskatchewan, 1940.
L. G. Putnam

least 2/3 of this probably went to the Eastend Area. It is doubtful that the district produced that much threshed grain.

In the end, only a minority of the crop was salvaged. A small amount of this could be found in the southern and most seriously affected part of the area, and somewhat more in the northerly portions immediately south of the Cypress Hills. Later that year, observers noted that much of the arable land looked as though it had been kept clean by tillage, as for fallow. The surviving grasshoppers had fled, failing to find a living. East of the Frenchman River, the crops were only slightly damaged, and provided a tantalizing view of what might have been. The grasslands were less seriously damaged, leaving people who owned cattle in a better position than those who grew only grain. The value of crops lost to grasshoppers in this area was estimated at 3.8 million dollars, plus a control campaign of $50,000.

This outbreak was unequalled before or since in its intensity, in Saskatchewan. Perhaps the best efforts we could have made would have been inadequate under these circumstances, with the relatively clumsy techniques of those days. The failure on the part of nearly everyone, from the growers on up, to anticipate and prepare for catastrophe, gave one long thoughts about human nature and insect outbreaks. The problems imposed by the inadequacy of immediate responses to emergent pest situations, as opposed to more adequate long-term ones, arise from farmers, officials and politicians, and are still with us.

Entomologists need a little shaking up from time to time, too. The fecundity potential of insects seldom finds full expression, but when it does, it is awesome. There is no substitute for a personal involvement in an outbreak, the end result of such released potential. The grasshopper outbreak of 1940 of the "Eastend area" of Saskatchewan

was one of the most vivid experiences of this kind.

P. W. Riegert has assembled the historical data on grasshopper abundance in Saskatchewan, up to 1966.[2] Most readers will probably be unaware of the methodology of grasshopper surveys and forecasts. Most of the literature on this is not generally available, but Dr. Riegert's work includes a good treatment of this subject.

[1]PARKER, J. R., R. C. NEWTON and R. L. SHOTWELL. 1955. *Observations on mass flights and other activities of the migratory grasshopper.* USDA Tech. Bull. 1109.

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MOVEMENT OF SPRING PEEPERS

By WALTER KRIVDA,
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On the night of August 1, 1975, while returning to town from Lake Atikameg by car, hundreds of spring peepers (*Pseudacris negrita septentrionalis)* were seen in the car headlights crossing the asphalt highway. A section of the highway about 100 meters long was covered by hundreds of the small frogs — all one species. They were coming out of the west ditch of the highway and moving in only one direction — east. Many were crushed by the passing traffic. Only three specimens were collected; they are preserved in writer's collection; one is crushed as taken from the highway.

Migrations of amphibians occur from time to time, both as young and adults, but are not often recorded in the literature.

This species is a sphagnum bog, pothole species. It may have increased in numbers locally or it may breed in extensive man-made ditches. This migration may have been occasioned by an explosion in local populations due to better living conditions in the shallow, warm ditches which are rich in aquatic insects of many species — notably Trichoptera. The frogs may also have been looking for a suitable hibernating site.

THOUSANDS OF AFRICAN CLAWED FROGS have been discovered in San Diego County's Sweetwater Reservoir and in drainage ditches in Orange County, California, according to the U.S. Fish and Wildlife Service. The agency has proposed regulations to control the importation of wildlife. The imported species sometimes breed rapidly in their new environments and threaten people, natural resources and native wildlife.

The African frog was originally brought into the U.S. for use as a pregancy test for humans, but has been replaced by more sophisticated methods. However, it has become established in Southern California where excess supplies were released or sold to pet stores. The frog first showed up in the reservoir in 1971, and it may have been responsible for the decline in the local population of tree frogs. It is feared that the African variety may migrate to the Colorado River waterway where it could cause much more damage.

From *Water Newsletter.* July 24, 1974.

CANADIAN RANGES OF SNAPPING TURTLE AND GARTER SNAKE INFERRED FROM PLACE NAMES

By FREDERICK W. SCHUELER, Department of Zoology,
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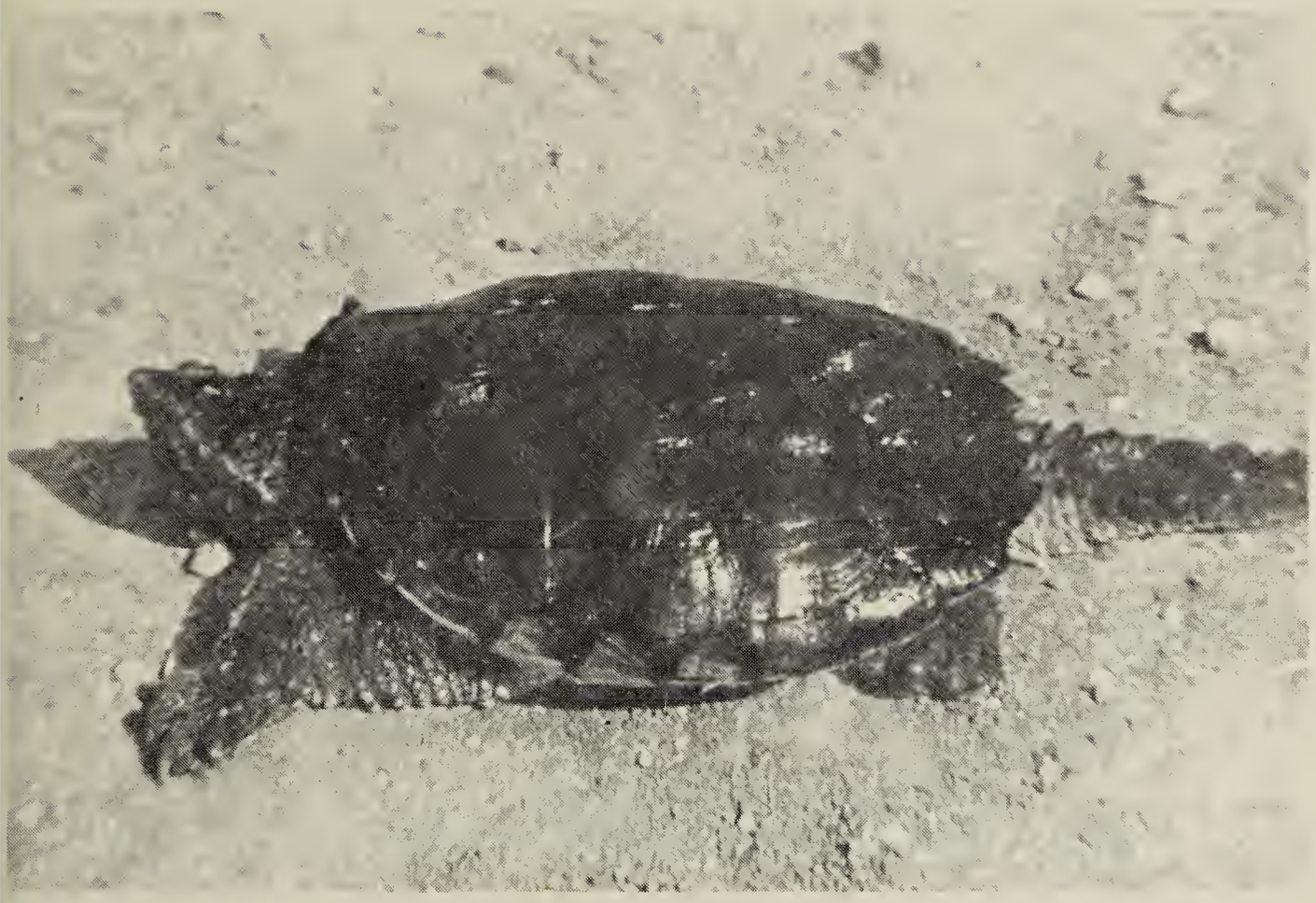
As Heuvelmans has shown, the existence of rare, wily, or cryptic species of animals may be unknown to science because the habits of the animals make it improbable that systematists will obtain specimens of them.[7] The Puma (*Felis concolor*) is a case in point: eastern populations were long thought to be extinct, whereas, in fact, they were extant but elusive.[13,14]

A herpetological observer in the boreal forest suffers from a compounded handicap in the pursuit of reptiles, as the animals he seeks are rare, local, silent and cryptic. While it may be possible to obtain the only calling male frog at a locality[12], the observation of snakes and turtles, which do not vocalize, spend much of their time under water or debris, and are restricted to the vicinity of particularly favourable hibernation and oviposition sites, is highly unlikely. Moreover, many reports of northern reptiles are sight records, rather than specimens which would establish their presence in an area beyond a reasonable doubt. Even biologists and naturalists who might photograph a vagrant bird or bottle an unknown frog or salamander are loath to burden themselves with an enormous Snapping Turtle *(Chelydra serpentina)* or the odorous remains of a long-dead Garter Snake *(Thamnophis)*. On the other hand, the presence of these species, which often evoke a pronounced emotional response among local people, is the sort of fact or event that is likely to be memorialized in the names of places where they occur, especially at the limits of their ranges where their distributions are patchy.

Accordingly, I examined the *Gazetteer of Canada* and *Repertoire Geographique du Quebec* to see if the distribution of place names based on "snake" and "turtle" (hereafter referred to as "Snake Localities" and "Turtle Localities") corresponded to the distributions of Common Garter Snakes *(Thamnophis sirtalis)* and Snapping Turtles, which are the most northerly species of their orders in North America.[4,9] After examination of these data showed some promise, I obtained a complete list of such localities throughout Canada and what is known of their origins, from the files of the Geographical Names Secretariat, Department of Energy, Mines and Resources through the kindness of Mr. Alan Rayburn and Ms. Monique Herous. A copy of this list is filed at the Herpetology Unit of the National Museum of Natural Sciences; it will be cited hereafter as "List".

Using these data I tested two hypotheses: (1) that localities named after the animals would occur mostly in areas where the animals are known to occur, and (2) that Snake and Turtle localities beyond the animals' ranges would occur in areas where appropriate habitat or sight records already suggest that the species may occur. My justification for the publication of this study is the fact that these hypotheses were largely supported by the data.

RESULTS. In the east the Turtle Localities (Figure 1) are quite agreeable with sight and specimen records, although the numerous localities along the Ontario-Quebec border would have been anomalous



Common Snapping Turtle. Nat. Mus. Nat. Sci., Ottawa

before recent sight records of Snapping Turtles from that area, and Snapping Turtles, like many other species, may extend eastward along the north shore of Quebec, as Riviere Tortue (50° 18′N 65° 22′W) is "named for the abundance of turtles in it" (List, p. 6).[12] [1] The absence of both Turtle Localities and specimen records from central northern Ontario and the general similarity of the eastern and western boundaries of the gap in both data sets suggest that turtles are indeed absent from that area, although Turtle Lake (49° 32′N 85° 30′W) indicates that the gap may not be as wide as it now seems.

In the Prairie Provinces the situation is less clear, and is complicated by the presence of more northerly Painted Turtle (*Chrysemys picta*) populations (broken line in Figure 1). Two extralimital localities can be disposed of: Turtle Lake, Alberta (59° 23′N 110° 35′W), resembles a turtle from the air, and Turtle Island, Reindeer Lake, Saskatchewan (57° 35′N 102° 23′W), was named "for Edgar A. Turtle, World War II casualty" (List, p. 13), but Turtle Lake, Saskatchewan (55° 24′N 104° 54′W), and Turtle Island, Nelson River, Manitoba (56° 21′N 95° 1′W), show no physical resemblance to turtles, and there is the following sight record from near the latter locality. Fishermen told James A. Johnston that they saw a 10-15-pound Snapping Turtle at Gillam, Manitoba, around 8 August, 1969 (NMC files). The five Turtle localities along the North Saskatchewan River northwest of Saskatoon are beyond the known range of both Snapping and Painted Turtles, and may indicate the presence of either species, although the Snapping Turtle seems more likely.

East of Alberta Snake Localities (Figure 2) help define the known range of the Garter Snake without extending it, except for Snake Island, in the Churchill River near Goose Bay, Labrador (53° 19′N 60° 10′W), which suggests that the Lake Melville valley, already known to be herpetologically and vegetatively richer than the surrounding area, may harbour Garter

Figure 1. TURTLES. Solid circles indicate Turtle Localities, bisected circles are Turtle Localities not named after turtles (see text), and the open circles are sight records or isolated specimens of Snapping Turtles. These last, from east to west, are Van Bruyssels, Quebec[1], Val d'Or, Quebec, and Englehart, Ontario[12], Gillam, Manitoba (see text), Berens River, Manitoba[8], Melville[2], Prince Albert National Park (NMC files), and Frenchman River[2], Saskatchewan. The solid line is the known northern limit of the (presumed) contiguous range of the Snapping Turtle, and the dashed line that of the Painted Turtle where it is north of that of the Snapping Turtle (based on Logier and Toner (1961), records cited above, and NMC files).

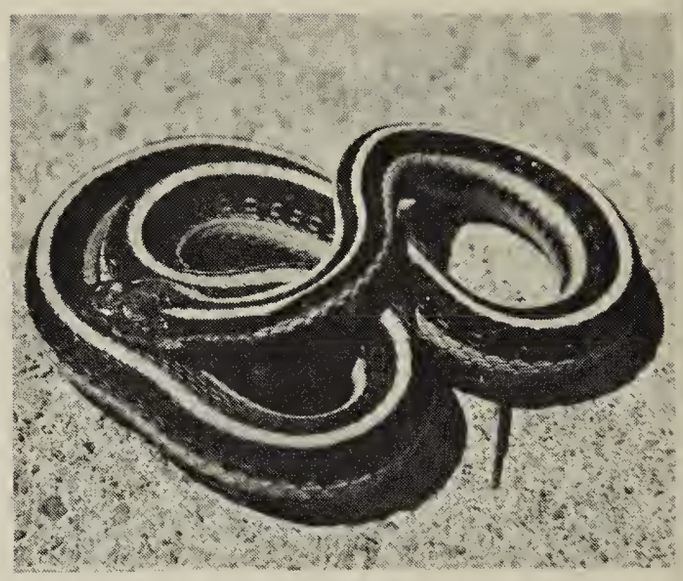
Figure 2. SNAKES. Solid circles indicate Snake Localities, bisected circles are Snake Localities likely based on the shape of the feature (see text), and the open circles are peripheral or isolated sight records of the Garter Snake. These last are, from east to west, Fort George, Quebec[3], Island Lake, Ontario-Manitoba, and Habala Lake, Saskatchewan (Cook, in preparation). The solid line is the northern range limit of the *Garter Snake* (based on Logier and Toner (1961), Cook (1968) and Cook (in preparation).) No localities are plotted in Ontario south of 48°N, which is shown as a dotted line, because of the large number of records.

Snakes as well.[1] [10] Snake River (=Snake Lake), MacKenzie District (64° 3′N 110° 31′W), is a sinuous "narrow, miserable stream to line down with a freighter canoe. In as much as snakes have a reputation for being wriggly and treacherous, the river would be appropriately named" (unattributed quote, List, p. 17); as it is in the vicinity of the clearly spurious Seahorse and Starfish Lakes, it is unlikely that its name derives from the local fauna. Both localities in the Yukon can also be excluded: the Snake River (65° 58′N 134° 40′W) is a sinuous, braided, stream, and Snake Lake (60° 31′N 133° 41′W) seems to be in error, as there is no body of water at that point (1:250,000 topographic map 105C).

Two localities south of Great Slave Lake point to the presence of snakes there: Snake Creek, MacKenzie District (60° 31′N 115° 04′W), has been "known locally as Snake Creek for a very long time" (List, p. 17), and Snake Lake, Alberta (59° 40′N 114° 9′W), was named in 1964 "by National Parks Branch due to the abundance of 'snakes' in this particular area" (List, p. 14). Finally, there are two Snake Creeks and a Snake River in British Columbia north of the known range of snakes (see Appendix).

DISCUSSION. There is a good general correspondence between the known ranges of snakes and of turtles and the ranges suggested by the place names, and the extensions of the known ranges suggested by the place names are ecologically reasonable: (a) along the north shore of the St. Lawrence and throughout the Nelson and perhaps into the Churchill River drainages but not into the muskeg of northern Ontario for Snapping Turtles, and (b) into northern Alberta, British Columbia and south-western MacKenzie District, paralleling the northern range of many species of birds,[5] but not into the barrens of northern Quebec for the Garter Snake.

The populations which have given their names to these localities may well be isolated from the southern range of



Red-sided Garter Snake.
Nat. Mus. Nat. Sci., Ottawa

the respective species. The great numbers of Garter Snakes found at dens in the Interlake region of Manitoba and elsewhere in the Prairie Provinces (F. R. Cook, personal communication) suggest that suitable hibernacula may be infrequent for northern snakes so that those reaching good denning sites during warm periods may have survived as isolated relicts when more rigorous conditions returned.[6] Cook has suggested that individual Snapping Turtles may wander far beyond the normal breeding range of the species; if a few individuals reached a remote lake suitable for breeding, an isolated population could become established (F. R. Cook, personal communication).[2]

Localities apparently named for snakes and turtles are a first clue to the existence of these isolated populations; the Appendix lists some localities that are peripheral. Naturalists visiting these areas could make a contribution by reporting observations and sending photographs or preserved specimens to Francis R. Cook, Curator of Herpetology, National Museum of Natural Sciences, Ottawa, Ontario, K1A 0M8, or to the author.

Members of the Saskatchewan Natural History Society may already have made observations bearing on the two main problems raised by this survey of place names: the northern limits

Red-sided Garter Snakes at hibernaculum. F. G. Bard

of garter snakes in western Canada, and the occurrence of turtles in the North Saskatchewan River. Any such information, including the origins of place names cited in this paper, would be greatly appreciated, and could be published in the *Blue Jay* or reported to the address in the previous paragraph.

ACKNOWLEDGEMENTS. I thank the Herpetology Unit of the National Museum of Natural Sciences, National Museums of Canada, for greatly facilitating the interpretation of the data and inspiring this study; F. R. Cook provided copies of his unpublished range maps of Canadian Herpetozoa, and J. A. Johnston suggested the hypothesis that Snapping Turtles occur far north of their known range. The general support of National Research Council of Canada grant No. A5999 to J. D. Rising is gratefully acknowledged.

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[2]COOK, F. R. 1965. *Additions to the known range of some amphibians and reptiles in Saskatchewan.* Can. Field-Nat. 79:112-120.

[3]COOK, F. R. 1968. *Reptiles and amphibians. in* Beals, C. S., editor, Science, History, and Hudson Bay, vol. 1, Dept. of Energy, Mines, and Resources, Ottawa.

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[5]GODFREY, W. E. 1966. *The birds of Canada.* Nat. Mus. Canada Bull. 203:1-203.

[6]GREGORY, P. T. 1974. *Patterns of spring emergence of the Red-sided Garter Snake (Thamnophis sirtalis parietalis)* in the Interlake region of Manitoba. Can. J. Zool. 52:1063-1069.

[7]HEUVELMANS, B. 1962. *On the track of unknown animals.* Rupert Hart-Davis. 558 pp.

[8]LOGIER, E. B. S., and G. C. TONER. 1961. *Checklist of the amphibians and reptiles for Canada and Alaska.* Royal Ont. Mus., Life Sciences Div. Cont. 53:1-92.

[9]MINISTERE DES TERRES ET FORETS DU QUEBEC. 1969. *Repertoire geographique du Quebec*. 701 pp.

[10]ROWE, J. S. 1972. *Forest Regions of Canada*. Canadian Forest Service, Dept. Environment, Canada. 172 pp.

[11]SCHUELER, F. W. 1973. *Frogs of the Ontario coast of Hudson Bay and James Bay*. Can. Field-Nat. 87:409-418.

[12]SCHUELER, F. W., and A. R. KARSTAD. 1975. *Notes on the distribution and habitat of amphibians and turtles in northwestern Quebec*. Can. Field-Nat. 89:57-59.

[13]WRIGHT, B. S. 1959. *The ghost of North America, the story of the eastern panther*. Vantage Press.

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APPENDIX

This is a list of peripheral or otherwise interesting localities; I can supply copies of the complete list for any province to anyone who is interested. British Columbian localities are given in the gazetteer only to the nearest 30', so the listings are approximate to that extent.

TURTLE LOCALITIES

Locality Name	County or District	North Latitude	West Longitude
QUEBEC			
Lac Tortue, Falardeau Twp. (=L. Tortu).	Chicoutimi	48°38'	71°07'
Lac Tortue.	Saguenay	50 55	65 31
Lac à la Tortue.	Champlain	46 37	72 37
Lac à la Tortue, Pérodeau Twp. (=L. Ponnet).	Labelle	46 47	75 12
Lac à la Tortue, Yéo Twp.	Pontiac	47 25	77 24
Lac à la Tortue, (=L. à la Loutre).	Rimouski	48 03	68 19
Lac à la Tortue.	Saguenay	48 49	69 56
Lac la Tortue, d'Atwater Twp. (=L. Audoin).	Témiscaminque	46 54	78 48
Rivière Tortue, Charpeney & Coopman Twps.	Saguenay	50 18	65 22
Lac des Tortues, Lapeyrère Twp.	Champlain	47 14	72 24
Turtle Lake, Dufay Twp. (=L. Buies).	Témiscaminque	48 04	79 29
Turtle Portage, d'Atwater Twp.	Témiscaminque	46 54	78 52
Mékinac* Twp.	Champlain	46 37	72 38
ONTARIO			
Turtle Island (=Copper Island).	Thunder Bay	48 46	87 24
Turtle Lake, Strathy Twp.	Nipissing	47 04	79 50
Turtle Lake, S of Watabeag Lake.	Timiskaming	48 04	80 37
Turtle Lake, Lebel Twp.	Timiskaming	48 08	79 57
Turtle Lake, McCann Twp.	Cochrane	48 23	80 29
Turtle Lake, (=Hectorine Lake).	Kenora	49 20	93 20
Turtle Lake, (=Mikinak** Lake).	Thunder Bay	49 21	88 57
Turtle Lake, S of Pincers Lake.	Thunder Bay	49 32	85 30
Turtlepond Lake, Slatterly Twp.	Kenora	49 33	92 37
Turtle Point, Tweedsmuir Twp.	Kenora	49 21	94 03
MANITOBA			
Turtle Island, Nelson R., W of Gillam.		56 21	95 01
Turtle River, flows N into Dauphin L.		51 07	99 39
Tortue Lake, SE of Long Lake.		52 09	96 02
SASKATCHEWAN			
Turtle Beach Post Office, SE of St. Walburg.		53 33	108 36
Turtle Creek, flows SE into Shepards Creek.		52 24	107 09
Turtle Lake.		53 36	108 36
Turtle Lake, N of Lac la Ronge.		55 24	104 54
Turtle River, NW of North Battleford.		53 10	108 50
Turtleford, SE of Walburg.		53 23	108 57
Turtlelake River, flows S into N Saskatchewan R.		52 57	108 34
Mikinak** Lake, NE of Turtle Lake.		53 43	108 33

ALBERTA			
Turtle Lake.		59 23	110 35
BRITISH COLUMBIA			
Turtle Lake, E of Taku Arm.	Cassiar	59 45	134 15

* Algonquin for "turtle".
** Cree for "turtle".

SNAKE LOCALITIES

Locality Name	County or District	North Latitude	West Longitude
LABRADOR			
Snake Island, Churchill River.		53° 19'	60° 10'
QUEBEC			
Lac à la Couleuvre, Laflèche Twp.	Saguenay	49 18	68 17
Rivière aux Couleuvres.	Saguenay	50 06	67 25
Lac Serpent.	Chicoùtimi	49 22	70 21
Lac du Serpent, Morency Twp.	Saguenay	49 23	68 09
Lac du Serpent.	Lac-St.-Jean-Ouest	49 50	71 37
Lac du Serpent.	Saguenay	50 15	67 31
Rivière au Serpent.	Lac-St.-Jean-Ouest	49 33	71 14
Lac Serpenteau, Bouteroue Twp.	Lac-St.-Jean-Ouest	49 18	74 05
ONTARIO			
Snake Creek, (=Mars Creek).	Cochrane	49 36	84 03
Snake Island, Albany River.	Kenora	51 15	84 09
Snake Lake, Templeton Twp.	Algoma	49 27	83 55
Snake Point, Medina Twp.	Timiskaming	47 19	80 10
Snake Lake (=Staddon Lake).	Kenora	51 47	91 12
Watersnake Creek, Shackleton Twp.	Cochrane	49 18	81 59
Watersnake Lake, Shackleton Twp.	Cochrane	49 16	82 01
Serpent River, flows NE into Berens R.	Kenora	51 36	92 40
MANITOBA			
Snake Lake, NW of McGavock Lake.		56 37	101 36
Snake Rapids, Burntwood R., S of Threepoint L.		55 29	99 04
Snake Lake, (=Setlak Lake).		56 18	101 18
Serpent Lake, S of Weaver Lake.		52 16	96 32
SASKATCHEWAN			
Snake Lake, (=Pinehouse Lake).		55 32	106 35
Snake Rapids, Churchill River.		55 43	106 33
ALBERTA			
Snake Lake.		59 40	114 09
BRITISH COLUMBIA			
Snake Creek, flows NE into Dunedin R.	Peace River	59 15	124 15
Snake Creek, flows W into Pine Creek.	Cassiar	59 45	124 15
Snake Lake, N of W end of Ootsa L.	Coast	53 45	126 15
Snake Mountain (=Tyee Butte).	Coast	53 45	125 45
Snake River, (settlement).	Peace River	59 15	122 15
MacKENZIE DISTRICT			
Snake Creek.		60 31	115 04

BURROWING OWLS IN SOUTH-CENTRAL SASKATCHEWAN

By JIM A. WEDGWOOD, 610 Leslie Ave., Saskatoon, Sask.

In a rash moment I agreed to a competition with Bernie Gollop, Editor of the Blue Jay, to see who could find the most Burrowing Owls within 100 miles of Saskatoon in 1975. For the Wedgwoods the contest started in earnest on July 1.

We had no great expectations. The annual Mayday Bird Count, when teams of observers scour the Saskatoon district, had yielded a mere six observations of the conspicuous bird in the last 10 years. K. O. Butts noted that the Burrowing Owl has been on and off the endangered species list.

Frank Roy wrote in "Birds of the Elbow" about the Burrowing Owl: "Fairly common summer resident, often returning year after year to the same nest-hole . . . Partial to pastureland." Pough noted in the "Audubon Guides": "This is a bird of the open, treeless, short-grass country . . ." Godfrey in his excellent book, "The Birds of Canada", shows the breeding range in Saskatchewan extending only as far north as Prince Albert. The records of the Saskatoon Bird Survey of 1966-70, when observers reported birds in a 60-mile square block surrounding the city, contained a few notes on the scarce bird.

From these leads a plan evolved: visit previously reported sites to look for owls and to acquire a better understanding of their habitat, then search the south part of the Saskatoon Area and a Sector south of that between Highway 11 on the east and Highway 4 and 7 on the west.

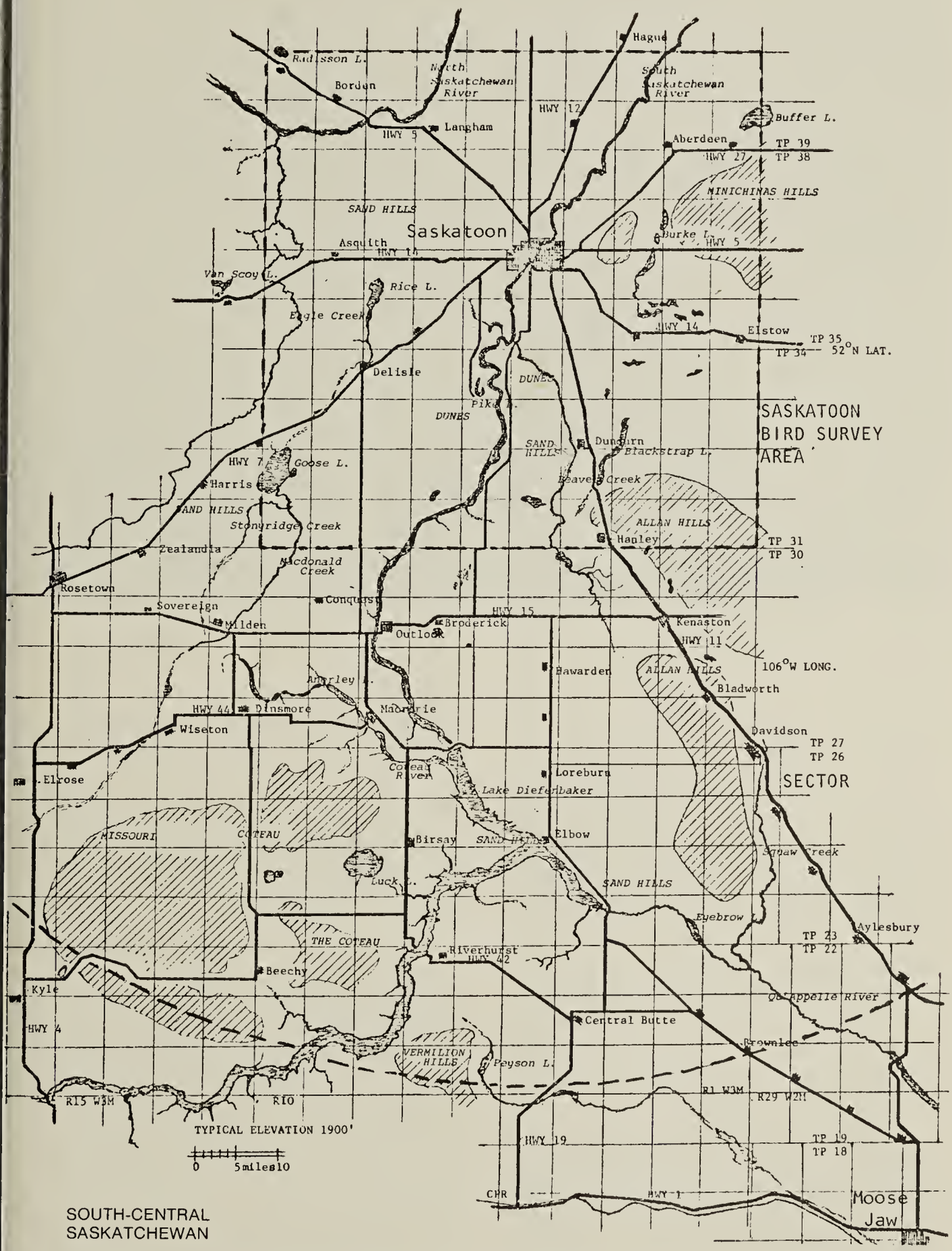
At 8:43 p.m. on Saturday, August 12, Gollop conceded, thoroughly beaten. Victory was ours, an 'owling success.

We continued the search but changed the emphasis. While still seeking finds, repeat visits were made to known sites to obtain additional information about the bird. Our and the Gollops' (Maddie included) trips were coordinated. The overall result was a semi-formal survey yielding some data on the Burrowing Owl in part of south-central Saskatchewan.

The account is based on our notes, on Bernie Gollop's records for 1975 and previous years and on the Saskatoon Bird Survey data. Observations in 1975 by E. A. Driver, Lynn Oliphant and by three farmers have been incorporated and historical information obtained from farmers and others has been used. The Editor kindly drew numerous references to my attention.

The Region. The map shows the Saskatoon Bird Survey Area and the Sector to the south of it, the two areas together forming the Region searched for Burrowing Owls in 1975. The Region occupies 9,149 square miles: 3,600 in the Saskatoon Area, 5,549 in the Sector. It is 124 miles north-south and averages 74 miles wide. It is mostly loam plains under crop cultivation.

The Region is partly in the extreme north of the Great Plains and partly in the southern parkland with typical aspen bluffs in the north and east. The Boreal forest lies 30 miles to the north. The only trees growing naturally in south half are in coulees and valleys with some in hills. A transition zone (Mid-grass Prairie), between the Short-grass or Mixed Prairie of south-western Saskatchewan and ranker



SOUTH-CENTRAL SASKATCHEWAN

Readers wishing further details should consult the *Atlas of Saskatchewan* by J. H. Richards and R. I. Fung, 1969. Univ. Sask. 236 p.

grasses of Parkland Prairie, angles across the Region from northwest to southeast.

The Search. In the Saskatoon Survey Area previously reported sites and likely tracts were checked by the Gollops and Wedgwoods with some duplication.

In the Sector, time was spent at first in the south part assuming owls would be more numerous there. Results were disappointing. A belt angling across the north half proved more productive and later efforts were largely devoted to it. The few sites known from previous years were checked. All occupied sites in the northern portion were revisited at least twice and most four times. There was no opportunity for a second trip to the 11 active burrows found in the south portion.

Soils and physiographic maps and aerial photos were used extensively along with the old standbys, topographical maps. Likely tracts were spotted from the aerial photos — not always successfully at first because learning to interpret them reliably took much of the season. The maps, especially the soils maps, were extremely useful in locating possible habitat.

Hills include the Allan, Vermilion, Eyebrow and "Strawberry" (Minichinas) Hills, and the extensive Missouri Coteau. They are largely under cultivation, but still contain considerable native prairie.

Annual Cycle. From all sources we had a total of 247 owl observations spanning from 1952 to 1975. These data provide a picture of the bird's arrival and departure and general activities while in the Region.

Inbound migration peaks around April 21. The earliest arrival was April 12 and the latest confirmed occupancy was May 8. Most of the initial observations were of pairs, indicating that most owls either arrive paired or pair with little delay. Pairs were seen more often than lone birds until mid-May, after which singles outnumbered pairs until the end of June. General onset of incubation in mid-May would account for the switch in proportions of singles and pairs observed, the females being underground on the nests.

A. W. Eckert wrote that the Burrowing Owl, like other owls, lays an egg every second day, approximately, and about 29 days are needed for incubation. Lise Thomsen in her California study concluded that incubation commences when the first egg is laid and that 10 to 14 days elapse between hatching and appearance of the owlet above ground. There is thus about 41 days from onset of incubation to first appearance of the young. This reconciles with incubation commencing in mid-May and young appearing in late June in our Region.

June 23 was the earliest an owlet has been observed and June 29 the earliest date for a complete family, seven nestlings. In the former case the egg was probably laid about May 11 and in the second clutch the first egg could have been laid as early as May 3. From personal experience the soil can still be frozen at the level of the nest on this date in most years. At the other extreme, the youngest bird in a family of eight juveniles seen on August 9 in 1975 still had down feathers sticking out here and there, a condition usually not observed after early July, The first egg in that clutch would have been laid about June 17, which implies that renesting may occur when the initial attempt fails.

The reports showed an increase in the incidence of pairs and singles around August 21. About this time in 1975 we started to encounter vacated sites. On the first weekend of September, of 11 sites occupied during the summer, eight still had families, one had a lone bird and two were vacant. On September 21 at 11 other sites there were two still with families (renesters?), four with pairs, two with loners and two were vacant. The interpretation: fledging is largely complete by mid-August; while some immatures leave, most stay on site, dispersing to burrows of their own; a few families relocate — we found three confirmed cases; and by mid-September most of

Young Burrowing Owls R. E. Gehlert

the young have gone, some adults (females?) have vacated, and the occasional male has also left.

Few birds remain into late fall. On October 5, 1975, only three out of 15 sites still had owls and one new single occupancy was found. October 8 is the latest an owl has ever been reported in the Saskatoon Area.

For most of July identifying young, females and males was not difficult, except at long range. The young bird's rusty throat band is distinctive and, as a rule, the male is decidedly lighter colored than the female. (Bleaching by the sun and feather wear from hunting are the reasons offered for the difference. Being below ground for much of six weeks, the female is not exposed to these influences. According to R. A. Grant the distinction is not completely reliable because of individual variations).

Identifying family members became more difficult in late July. The young were molting into an adult-like plumage and tonal differences in the adult plumages were less pronounced. Counts in this period were usually only of total families. However, the male's behaviour often served to identify him as he continued to react to disturbances by giving the comical bobbing distraction display and alarm call. This reaction was observed in September even when only two birds, presumably the adults, remained on the site.

By mid-September both adults appeared much darker. According to Eckert the annual molt occurs in August-September. Occasionally where the family was still bunched, rather than scattered over the site, thus affording a comparison, the young could again be identified by their lighter plumage.

Very much in evidence until early September, the male was often spotted before the family was found. Though

occasionally on a post or rock, he was usually on a sentinel mound up to a hundred yards from the nest burrow; one was seen a third of a mile away. If disturbed he would sometimes fly over the nest burrow on his way to another sentinel perch. In July the female was usually with the young at the nest mound. If alarmed, she went down the nest tunnel with the young or flew to another mound.

At first the young clustered timidly at the nest mound, disappearing at the least alarm. Repeat visits to some sites indicated that birds had been missed on the earlier trips. By August the juveniles were ranging away from the home burrow in ones and twos and using mounds, burrows and "foxholes" of their own, again making accurate counting difficult.

About mid-September the owls grew quite secretive, often only the top of the head and the bright yellow eyes being visible. The birds did less daytime flying and hunting than in August when all members of the family were more or less active during the day. The adult behavioural changes seemed to coincide with the fall molt.

Seasonal Movement, Migration and Winter Range. In 1975 four sites were vacated before the general exodus of young started in mid-August. A pair seen on May 11 had disappeared by July 13 — possibly they moved to another site. A family of two adults and two young first seen on July 6 was down to three members on July 13 and had vanished by July 16. Two lone birds presumed to be nonbreeders were gone by August 2 and 9 — meagre data but suggestive that nonbreeders might not remain on the sites for the full season.

By September 1, approximately 106 immatures and adults were unaccounted for from 24 sites checked before that date. A few could have been missed on second counting and mortality could have taken some. The majority, however, were presumably birds which had vacated the sites. Yet only six new sites containing 23 birds were found after August 31, and some of these would not really be new occupancies as owls could have been there all summer. There were obviously too few new occupancies to account for the numbers vacating other sites, or for dispersals from neighboring regions. If there had been any significant amount of premigratory wandering, the incidence of new sightings late in the season should have been greater.

Unless birds flocked into the south part of the Sector, which was not revisited, the indication was that there was little wandering within the Region. This suggests that most of the birds migrate a considerable distance upon leaving the home site. Also implied is that some of the immatures migrate on their own since one or two birds were still on 17 of 20 sites checked on the second and third weekends in September and some of them were adults.

Nothing is known about the migration route or the winter range for Burrowing Owls from this Region. There have been no recoveries of birds banded in Saskatchewan, including young at six burrows in the Saskatoon Area and at one in the Sector.

Because of the species' strong attachment here to mounds, tunnels and "foxholes" during the postbreeding as well as in the breeding season, Ligon's and Coulombe's references to migrants and nonmigrants using burrows during winter in the American Southwest are significant. For both migratory and nonmigratory populations the burrow attachment seems to be an element of the entire life cycle.

It could be that the welfare of the central Saskatchewan population is dependent on, among other things, an adequate stock of burrows on the winter range as well as in this Region. Whether the condition holds while the bird is migrating is an interesting question.

Use of Sites and Trends. J. F. Roy and others have noted that the owl makes repetitive use of a plot, even returning to the same burrow year after year. In

Adult Burrowing Owl Gary Anweiler

the Saskatoon Area one site was known to have been occupied for six consecutive years, another for four years and two for three years, all in the 1960's. (That more instances are not known could have been due to inadequate observing and reporting.) A tradition of re-using sites appears to be characteristic of the species.

As a result, we were dismayed at the outcome of our visits to previously reported sites. Thirty-seven Area sites were reported from 1952 to 1974 but only three were active in 1975, and of these just one yielded a family of young. That eight "new" sites were found in the Area in 1975 does not mean a resurgence of birds. These "discoveries" are put down to more intensive searching of tracts seldom visited by naturalists. Of one "new" site, the farmer said ground owls had used the pasture for years.

The one pleasant surprise on revisiting the older sites was finding that the majority could still be considered "standard" Burrowing Owl habitat. Only five of the earlier sites were no longer suitable because of urban or other development or different agricultural practices. Absence of birds was not due to loss of habitat.

In the three years, 1963-65 an average of seven active sites was reported each year. From 1966 to 1970 there was an organized, concerted five-year drive by many observers to determine the status of all bird species in the Saskatoon Area, yet Burrowing Owl reports dropped to an average of five sites a year. In the 1971 to 1974, with effort comparable to the early sixties, reports were down to one a year. Even with a demonstrated tradition for re-using sites, the owl population in the Saskatoon Area had decreased considerably over the last several years. One farmer's remark sums up the situation, "We used to walk through that pasture on our way to school and there used to be a lot of owls there; we liked the little fellows."

In my view the drop in numbers here is coupled with the decrease in abundance of the western race of the Burrowing Owl. However, being at the northern extremity of the range, the local population may be supersensitive to minute environmental changes. A withdrawal rather than an overall population decrease could account for the drop. We have this situation with another southern plains bird, the Lark Bunting, which appears some years and not others. In fact there may have been a shift in distribution within the Area. In 1963-64 the majority of the reported sites were north of the city in Townships 37 to 39, whereas in 1975 most of the occupancies were about 40 miles south of this belt, in Townships 31 and 32. However, differences in search efforts in the two periods may partly account for the apparent change.

Next pages: Seven young Burrowing Owls.
R. E. Gehlert

Though less is known about the history of sites in the Sector, we found examples of both repetitive occupancy and a decline in numbers there too. We have driven by a pasture near Broderick four times over the last six summers, and seen an owl family on each occasion, one burrow mound being used in the first and last years, another in the intervening years. One Conquest district farmer said that a pair has nested in various spots in his pasture for each of the six years since he moved onto his farm. A Central Butte farmer told us that there had been owls in his pasture every year for 40 years "but there used to be more broods". Of 11 previously reported sites in the Sector, only three were occupied in 1975. One of these earlier sites was of unusual interest. W. E. Clyde Todd, while in the Davidson district in 1932, "saw a pair of Burrowing Owls 14 miles W of Davidson" — and 14 miles W of Davidson we found a family 43 years later.

The only colony we found contained six or eight active burrows with a population conservatively estimated at 42 birds on July 20. Accurate counting was difficult. The males seemed hyperactive, flying around randomly and occasionally crossing sites to parts of the field not occupied by the colony. Territorial boundaries seemed nonexistent. The young were surprisingly advanced and some were on the wing. Because of the terrain it was not possible to see all birds on all sites from a single observation point outside the colony. On August 17 the count was down to around 15 owls, at least two families having moved into adjoining pastures.

The colony occupied some 80 acres in a pasture of about 250 acres. The undulating field, underlain with gravel, was lightly strewn with rocks and scattered patches of buckbrush. Much of it was a rougher, more cluttered habitat than the typical one.

In only three other instances was more than one family found in a field. In one there were two families about 200 yards apart; in another the two home burrows were 300 to 400 yards from each other. The comments of several farmers suggest that colonial nesting was formerly a more common occurrence.

1975 Owl Population. A total of 276 Burrowing Owls was found in the region in 1975. Thirty-seven were in the Saskatoon Area at 11 sites and 239 in the sector at 40 sites. Included are three loners, three birds presumed to be post-breeding wanderers and four pairs which were either nonbreeders or breeding failures. There were 45 successful breeding pairs with at least 172 young.

The largest family seen in 1975 had 11 young. As the number of eggs in the clutch is given by Eckert as six to 12, by Bailey as six to 11 and by Ligon as eight to 12, this one was a near record — another 'owling success. At the other extreme three families had but a single owlet each.

In estimating reproduction, only counts made between July 15 and August 15 were used, after the young were above ground but before the main dispersal started: 134 birds in 21 families — theoretically 4.4 young per family. Incorporating my assumptions for necessary corrections indicates that roughly 4.6 juveniles per breeding pair fledged to independence in the Region in 1975.*

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*The need for these corrections in a computation of fledging is brought about because our objective was to find the most birds, not to conduct a rigorous study of reproduction. In the estimate of 46 juveniles I have attempted to allow for,

—birds missed on counts — though three of the second visits did result in higher counts, it was not possible to revisit all the sites.

—one-adult families — one family was known to be shy an adult. As noted elsewhere, it became difficult to distinguish young from adults in August, and to assume two adults per family for counts in this period would not necessarily be correct.

—reduced counts in hot weather — five of the counts included in the computation were made at mid-day during a heat wave. H. N. Coulombe observed that many Burrowing Owls stay underground on a hot day.

—mortality in the period prior to fledging. The counts used in the computation were spread over the four weeks prior to August 15 when fledging was adduced to be essentially finished. Some mortality among the young, particularly for those counted in the last half of July is to be assumed.

Counts of 15 families (94 birds) in July, again with assumed corrections, yield a conservative estimate of about 5.1 young produced (reaching the surface) per breeding pair. This suggests that roughly 90% of the young reaching the surface finally fledged.

A comparison with reproduction studies undertaken elsewhere could indicate whether family success in this region is to be considered good or poor. However, surprisingly few detailed studies have been made on the Burrowing Owl.

Table 1 includes those known.

Table 1. Burrowing Owl Reproduction Data

	South-central Saskatchewan	Western Minnesota	Western Oklahoma	New Mexico	California	
	1975	1963-64	1970	1970	1965	1966
Number of breeding pairs in reproduction determination	21	5	54	15	9	15
Breeding adults per cent of adult population	86%		92%		91%	59%
Young reaching surface per breeding pair	5.1±	3.8	4.7	5.2	4.4[1]	3.4[1]
Independent young per breeding pair	4.6±		3.3	4.9	2.7	1.9
Per cent of original young fledged	90±%		89%	95%	61%	56%
Study area	Regional	Regional	Prairie dog colonies plus surrounding region	Two colonies	One colony	
Period for reproduction determination	Mid-August		First of August		End of August	
Observer	Wedgwood	Grant	Butts	Martin	Thomsen	

Incidence of family sizes in south-central Saskatchewan, 1975 (exclusive of colony)

Total number of adults and young in family	3	4	5	6	7	8	9	10	11	12	13
Number of families	3	9	6	11	4	2	0	1	0	0	1

A precise comparison of the results of these studies should not be attempted. Not only were there differences in the methods of conducting the studies, but there were also differences in the interpretations of the terms. The definitions applied to "adult population", "breeding pair" and "fledging" were not necessarily the same from one study to another. Also, see text for adjustments made to Wedgwood data.

[1]Given as productivity of 2.2 and 1.7 young per breeding adult in the original report.

One might conclude that reproduction in our region is not unsatisfactory. However, the comparison is weak. It is not known if any study period was an average owl year, and the California results show that much variation is possible. The reproduction level needed to balance losses is not known. Two studies were highly site specific, that in California being of a colony on an airport, that in New Mexico being of two colonies, one along a railway embankment, the other in an outwash. On the other hand the Minnesota and Saskatchewan studies were regional.

Food. Often owls were seen chasing insects on the ground or in the air. Enough were identified as grasshoppers to suggest that this insect is a primary food item.

The pellets regurgitated by owls and hawks consist of the indigestible parts of the materials consumed and provide clues to part of the diet. Our own examination was confined to visual inspection from mid-August onward. (We usually refrained from intentionally walking up to any nest on or in the ground containing eggs or young so as not to leave tracks or scent a predator could follow to the nest.) Most of the pellets appeared to consist largely of grasshopper casings, and the consumption of grasshoppers by Burrowing Owls would seem to be prodigious in August.

Two pellets collected by J. B. Gollop in September were examined microscopically by M. E. Taylor. He identified carrion beetles (*Silphidae*), ground beetles *(Carabidae)* and at least three grasshopper species *(Acrididae).* In addition to the indigestible parts of these adult insects, there were approximately 68 mandibles, most of larvae. A considerable amount of vegetative matter was also present.

Only a few pellets contained fur or bone. It was common, however, to see small bones scattered on the mound and in the burrow entry. One pellet was made up mainly of a rabbit's foot complete with claws and presumably taken as carrion. The largest complete bone we saw at an entry was identified by R. L. Rausch as the legbone of a 13-lined Ground Squirrel. He also identified skull parts of Meadow voles in another pellet. A male was seen with a mouse in its talons flying to a nest mound, where it landed, released the mouse and took off without pausing. A young owl promptly picked up the mouse. Only once were feathers definitely not from a Burrowing Owl seen in a tunnel entry. They appeared to be from a crow, again assumed to be carrion.

Hazards. One of several observations of the Burrowing Owl's reaction to aerial predators may be of interest. When first coming upon the colony, only seven scattered adults were seen and no young were in evidence. Three Swainson's Hawks were alternately circling low overhead and perching on posts beside the field. The next day about 42 owls were in view, many of them active. No hawks were seen.

Of 477 owls banded in the Dakotas from 1931 to 1934 by Brenckle and Berner, 10 were from birds killed by traffic — and one would have to assume that undiscovered and unreported instances would have increased the proportion. Presumably referring to the United States, Eckert wrote that Burrowing Owls suffer considerable losses from road kills. What is the situation here? That the largest family, one nesting within 50 yards of a busy highway, should be reduced from 13 to four birds in six weeks prompted the question.

The owls frequent roadways. One bird was found dead on a road 200 yards from an occupied pasture and there is a known road kill. There are three reports of Burrowing Owls being spotted in car headlights in the Area. A farmer remarked, "I have often seen ground owls playing on the road at night." I take "playing" to mean chasing insects; we saw a family catching grasshoppers on a road in mid-morning. One-third of the families located in 1975 were on sites adjoining the road allowances of highways or busy grid roads, and of these three-quarters had nest burrows within 50 yards of the roadways. If the owl is

Burrowing Owls at mound. Fred Lahrman

prone to road kill, there may be cause for concern in view of the numbers living close to traffic. Unfortunately insufficient data exist for a comparison of losses in families close to and remote from traffic. All we have is an indirect indication: five families near traffic decreased 40 per cent in size in an average of 35 days.

The use of agricultural chemicals in connection with private pastures varies considerably from farm to farm, district to district and year to year. Grasshopper poisons may be applied to pastures, adjoining areas and roadsides in years of infestation. An intensive study would be needed before any firm conclusion could be reached about the effects on local owls, especially from the poisoning of grasshoppers which appear to be a food staple.

Herbicides are sometimes used to eradicate buckrush. Buckrush control would seem to improve Burrowing Owl habitat.

Nothing was learned from our survey about attrition due to rodent and predator control programs or from indiscriminate shooting, all identified by Grinnell and Miller as causes of owl losses in California.

The Burrow. Fourteen burrow mounds were examined closely. The general characteristics of many others could be determined from a distance. Badgers appear to be the main providers of owl burrows in the Region. Hole size and other signs were usually typically badger: the entries were in, not beside, the mound and the mounds were extensive, the soil having been churned up by the original occupant over an area 30 feet across in some cases. Invariably there was more than one hole or remains of a hole. The owls used partly filled in holes as "foxholes", sheltering in them as well as in tunnel *entries.*

Two and possibly three nest burrows were too small to have been dug by a badger or fox. The tunnels were oval in cross section, higher than wide. They were assumed to be enlarged ground squirrel holes.

Only one hole was thought to have been excavated by the bird itself. The oval tunnel was wider than high. It was in very coarse dense sand, the only one found in sand.

S. J. Shadick found a rather unusual burrow and we came across an identical one four miles away. The hole, about a foot in diameter, went almost straight down some two and a half feet

before going off horizontally. (Usually the first section of a tunnel ramps down at about a 30-degree angle). How any animal could have dug the hole was difficult to conceive, as it would have been standing on its head kicking dirt straight up. One hole had served as a nest burrow, the other as a secondary burrow.

Habitat. Our notes on 82 of the 95 places where owls have been seen since 1952 yield a fairly complete picture of habitat.

Typical habitat is a pasture, with short, prairie cover, no trees and mainly devoid of brush, on terrain no more than gently sloping or rolling, and with a population of ground squirrels: a flattish, open, short-grass prairie pasture with ground squirrels. Only 11 sites were elsewhere in pastures and these are described under Exceptional Sites.

The conviction grew that the key criterion is an adequate stock of animal holes and mounds for the family. The presence of ground squirrels was usually an indication that such existed. More precisely, a ground squirrel population probably reflected that the site had been badger territory. Exceptions were found in other characteristics of typical habitat, but no owl was seen other than at or near a tunnel or "foxhole" or a look-out mound except for the occasional bird on a post. From observations of the owl's reaction to Swainson's Hawks, there is obviously survival value in the bird's almost constant association with hole and mound and in the family having access to a number of holes dispersed across the site.

The 71 occupied pastures were of three kinds: 23 farmyard pastures, 47 range pastures and one community pasture. The typical farmyard pasture is a small field adjacent to a still-used farmyard; it originated as a pasture for the farmer's milk cows and horses. Most are on prime agricultural soils. Occurrence is random.

A range pasture is usually a larger field up to a section in size. Most are on poorer soils — saline, gravelly, stony or sandy. Occurrence is generally related to the distribution of these soils. The main incidence is along the Macdonald Creek drainage course which runs for 50 miles from the Missouri Coteau to Goose Lake. A string of range pastures, some in native prairie, some in tame grass, follows the course, broken in only a few places with cultivated areas. Twelve owl sites were found along this stretch, mostly on grazed or stunted native cover and, with one exception, only where the terrain was a broad swale not more than a few feet below the surrounding plain. The Stonyridge Creek drainage course and three big saline depressions northeast of Broderick, west of Hanley and east of Central Butte also contain several range pastures. Altogether 25 owl sites, about half the active sites, were found in these five tracts in 1975.

Only three sites were in hill country, two in the Allan Hills and a 1967 occupancy in the "Strawberry" Hills. Each one, however, was not actually on a hill, but on less convoluted bottom land between hills. Five other sites were on rolling land. Only one site was found in the thousands of acres of short prairie blanketing the brows, sides and some bottoms of coulees and valleys in the Region. The remainder were in terrain no more than gently undulating or slightly sloped.

Exceptions to the short-grass criterion for typical habitat were few. Only six of the active sites in 1975 were in ungrazed areas, and of these, three were in railway right-of-way. However, all six burrows were in patches of stunted growth surrounded by medium or rank grasses. Rarely, other occupied fields contained patches of taller growth or buckbrush. It is ironic that naturalists take a dim view of overgrazing, yet such a stock management practice produces prime Burrowing Owl habitat here.

The thought that overgrazing might mean an inadequate food supply was dispelled upon finding owls on an alkali flat. In the vicinity of the nest burrow grasses were stunted and

Adult Burrowing Owl Fred Lahrman

sparse, with considerable bare ground showing, Prickly Pear Cactus dominated. This territory sustained one of the largest families — eight nestlings, seven of which fledged. One could well imagine this desert-like place was the species' original habitat. The owl's long legs, ability to run fast and its manoeuverability seemed suited for chasing prey through sparse vegetation. Strangely, the plumage colouration seemed to blend even better than on short-grass prairie. The head of the owl and the lobe of the cactus presented similar silhouettes, and against the sun it took hard looking to spot the owls.

To find only two families on close cropped, tame grass pasture was puzzling. Of course breaking the prairie sod to sow tame grasses would likely destroy any existing burrows and mounds, and interrupt the tradition of repetitive occupancy where owls had been present. However, ground squirrels and badgers have repopulated some of these fields. There is the appearance of suitable owl habitat. Exchanging tame grass for native cover would not seem to be a deterrent where a stock of burrows and mounds exists, yet for some reason it is. A large part of the Region, 320,000 acres is devoted to community pastures. Our assumption was that owls should be found in such pastures in the south half of the Sector. Cruising 51 miles of trails alongside and through them changed our minds. Lots of Swainson's Hawks, many Chestnut-collared Longspurs, several antelope, a few ground squirrels, but not a single owl. There is one report of an owl family in the Dundrun pasture in 1968.

Some community pastures, such as Grainland, south of Elbow, are largely on sandy soils and the resulting small number of burrows may account for the lack of owls. Other community pastures are on medium soils, such as Willner and the Co-op west of Davidson and Aylesbury, but the ground squirrel populations in them are generally small. This may result from lighter grazing here than in private range pastures. Further, much of the acreage is in tame grasses. In sum, most of the area in community pastures simply does not fit the model for Burrowing Owl habitat. Yet parts of the Willner and Dundurn pastures are typical habitat with stocks of burrows, but for some reason are not occupied by owls.

Amount of Habitat, Unfilled Niches. In many districts farmyard pastures are almost a thing of the past: in seven miles between Sovereign and Zealandia, none; in 18 miles, Dinsmore to Macrorie, four; in 20 miles, Elbow to Hawarden, four or five; in 18 miles south from Kenaston, five; in nine miles, Brownlee north to the Qu'Appelle Valley, two. Also, not all farmyard pastures meet owl requirements. Similarly, range pastures are rare or non-existent in many districts and suitable habitat occurs in only a minority of these fields. Thus the total amount of habitat is very small but small as the amount may be, only a fraction of the number of the fields considered fit for owls were actually occupied. By comparison, whereas one expects to see Mallards on most "good" prairie sloughs, to find Burrowing Owls in a "good" prairie pasture was the exception. Regrettably no record was kept on the frequency of occupancy but the impression was that owls were found in only one of every 15 or so suitable fields. Moreover, judging from the density of occupancy in the one major colony, a number of occupied fields had sufficient burrows for additional families.

Of the 45 families located in 1975, 10 were in farmyard pastures and 30 were in range pastures. Three of the former and 15 of the latter, less than half the total number, were on tracts thought to be akin to natural habitat, that is, the land was marginal and the grasses would probably have been sufficiently stunted even without grazing.

Conversely, seven of the families in farmyard pastures and 15 of those in range pastures, or 55% of such families, were on better soil, land rendered suitable for owls only by moderate to intensive grazing (or, in one or two instances, possibly by intensive cropping by ground squirrels). As this situation is due to man's stock management practices, owl habitat on good soils should really be looked upon as artificial. A change to less intensive grazing would likely result in these tracts having grass too verdant for the owl's liking — as was observed in abandoned pastures.

A continuation of trends in agricultural practices and in rural life style could result in some owl-occupied farmyard pastures passing out of existence. Advances in the technology for handling poor soils could lead to some range pastures being connected to tame grasses or planted to crops.

Exceptional Sites. Ten sites recorded since 1952 were so different from typical habitat as to warrant mention. A family occupied a burrow in a plowed field in 1969; R. E. Gehlert banded the young. Two sites were in urban areas. A pair was seen at burrows on the Saskatoon Airport in July, 1968, although it is not known if they raised young. A bird occupied a burrow on the university campus in Saskatoon in the spring of 1972 but remained only two weeks. Within a hundred yards or so of this burrow were two shelterbelts, a secondary highway, an arterial road, a parking lot, farm structures and other buildings. In 1962, J. B. Gollop found a family using a road culvert as a nest burrow.

Prior to 1975 owls had been observed at four places along the right-of-way of the Canadian National Railway's Saskatoon-Rosetown line. One occupancy was at least three years, another at least two. Thus I thought that railway right-of-way might form a major habitat type. Of 205 miles of track in the region paralleled by roads, 183 miles were checked for owls. Portions were scanned — for males using fence posts or poles as sentinel perches — more than once in connection with other trips. Only two new sites resulted, both along the Saskatoon-Rosetown line, and just one former site was in use in 1975. Two of the active burrows and two of the earlier ones were in badger-like holes. All three active sites had a number of secondary holes.

Apparently the bird's primary drive is to seek out a burrow and any motivation for "flat, treeless, short-

grass country" was submerged in all instances of atypical habitat.

The Past. Though the Burrowing Owl was more numerous here in the recent past, was it always more numerous or ever really common? As much of today's population is associated with artificial habitat (intensive grazing), history could be significant when attempting to assess the future. The experience of six informed men who travelled in central Saskatchewan in earlier times are particularly relevant.

Thomas Blakiston, in April-May of 1858 while on a buffalo hunt from Fort Carlton to the Anerley Lakes country in the heart of the Region, collected bird specimens and eggs. In 1859 the Earl of Southesk spent most of July in the Region from the Eyebrow Hills to Eagle Creek. He commented on a number of plants, birds and animals including badgers and ground squirrels. In the 1930's, O. C. Furniss, a Prince Albert naturalist, while bicycling from Biggar to Swift Current, kept track of the gradual decrease in abundance of northern plains birds and the corresponding increase of the more southerly species. Blakiston and Southesk, in particular, had superior observation platforms, the backs of horses. Not one of these three observers mentioned the Burrowing Owl. Since they kept diaries, for all to overlook noting the species seems beyond reasonable coincidence, especially a diurnal owl with such distinctive appearance, curious alarm display, unique nesting habit and complete lack of secretiveness in spring and summer. They probably never saw a Burrowing Owl. The two earlier records are of particular interest since they were made before the disappearance of the buffalo and prior to human settlement.

H. H. Mitchell, the provincial government naturalist, wrote in 1924 that the owl was "not noted breeding north of Davidson." According to Todd a Carnegie Museum specimen collecting party, headquartered in Davidson and working the country from Elbow to Quill Lakes in May and June, 1932, met with Burrowing Owls

Burrowing Owl flying. Gary Anweiler

only twice. J. Dewey Soper, who made numerous bird surveys for the federal government and who was in the Region in seven of the years between 1939 and 1949, saw the bird just once, near Elrose in 1942.

Reports from southeast of the Region, imply that the owl moved in there after human settlement. Grant noted that the first record in Minnesota was in 1881, and that it increased up to 1924. According to T. E. Seton, Manitoba's first report was in 1897 and around 1900 the bird was rare but increasing. Cartwright wrote that by 1931 it was not uncommon. John Macoun, travelling westward along the International Boundary in 1879-80, did not see the bird until he reached the Frenchman River, south of our Region. Yet Mitchell, writing mainly of the second decade of this century, reported the owl not uncommon in Saskatchewan but more numerous in the extreme southeast of the province. Presumably referring to the 1920's or earlier, Taverner gave the CPR mainline as about the northern limit in the Prairie Provinces but Macoun reported it north of Moose Jaw as early as 1896. Although Brenckle found enough owls in South Dakota in 1931 and 1934 to band 376, Grant in 1963-64 crossed the Dakotas six times specifically looking for these birds and could find only 13 pairs.

To the south and southwest of the Region, Macoun, who noted the bird in both prairie dog and ground squirrel colonies in 1879-80, reported it at Rush Lake in 1891. There are other scattered observations from that period. A. C. Bent located only three pairs in 1905-06. These records indicate that the owl has always been present, but rare, in the arid southwest. Reports from the 1920's and 1930's suggest a small, scattered population to the south of our Region. Soper writing in the Canadian Field-Naturalist summed up the 1927-41 post-settlement situation as follows: "Sometimes long distances can be covered in southern Alberta and Saskatchewan without observing any, though this is typical Burrowing Owl territory."

Likely the Burrowing Owl has always been present here at the northern extremity of the Province's southwestern population. Prior to human settlement the bird was extremely rare, being confined to a few, scattered, sparsely vegetated tracts, places not attractive to travellers. Settlement, which occurred mainly in the period 1895 to 1920, led to intensive pasturing, a condition not present when buffalo, and later cattle, ranged freely. Countless environments attractive to gophers, and thus owls, resulted. It is quite possible there was virtually an owl population explosion, peaking in the 1920's and 1930's. But numbers never rose to the point where the bird was generally common, except perhaps in some districts, or anywhere near filled available habitat. Already at play were factors prejudicial to the bird's welfare, first limiting population growth and then leading to a long, still continuing decline.

In Perspective. Burrowing Owl habitat in this region is very scarce, with the possibility of it becoming more so, and most of what exists is artificial, the result of man's activities. Truly natural habitat occurs only in parts of the extreme southwest corner of the region and in scattered soil discontinuities elsewhere. Though the stock of habitat is small, it is a long way from being filled, and can hold a much larger number of the birds.

The population of ground owls is small, perhaps 100 to 200 breeding pairs in the entire Region, or roughly one pair per 70 square miles. The general view is that numbers were greater at one time. Yet I suggest that the present Regional population is higher than it was before human settlement, even though the continental population was apparently greater then. Why the population here is currently low and evidently still decreasing is not known. Next to nothing is known about hazards faced by the owl, although road kill could be a major one.

As an adult bird spends almost half its annual cycle in the Region, factors influencing its welfare here are important. However, as the bird apparently has an inherent need for ready access to burrows the year round, the availability of these on the winter range, and perhaps during migration, could also be significant. Little is known about this aspect of the local population's life cycle.

In my opinion the owl is an unadaptable, highly specialized bird in a very narrow niche, dependent for its nest on animals which are subject to control programs, and dependent for its food largely on the grasshopper which is the object of poison programs. Our population has not adapted to tame grass pastures replete with burrows and grasshoppers, nor to sandy pastures as it has in Nebraska, nor to grain and stubble fields as it has in California.

The Burrowing Owl in central Saskatchewan is in a bad way and we aren't sure of the causes. In the United States owl population declines are often associated with loss of habitat, but, as far as the recent decrease here is concerned, we really can't say that is the case. Until we do know the reason, we are not in much of a position to take meaningful remedial action, if such is possible and desired. We need more definitive studies in order to get answers — a furrowing brow for the Burrowing Owl.

Adult Burrowing Owl on mound. Doug Gilroy

This account may imply that our search was a lot of work. Far from it. A trip invariably included some random sightseeing — what we term the ODADE search technique, or Oh Damn, Another Dead End. Not soon forgotten are: the vista from the Vermilion Hills south of Riverhurst looking northwest over the wide, blue sweep of Lake Diefenbaker to the hazy ridge of the Missouri Coteau; the lower Anerley Lakes along Coteau Creek, surely one of the most beautiful valley scenes anywhere; picking Saskatoon berries while admiring the rolling countryside, watching the hawks wheeling high above the Allan Hills, and trying not to tramp on prairie lilies; the pleasant surprise of seeing Upland Plover on road, post and field for over a mile, and realizing these wild pairie birds are being seen in a concentration last common half a century ago; coming over a rise upon a herd of antelope, with kids, a mere 40 miles from Saskatoon; scanning for owls while the air around is filled with the sounds of Chestnut-collared Longspurs; and finally spotting a Burrowing Owl, an interesting, comical bird.

Our summer's weekend activities proved two things: that Burrowing Owls are mighty scarce and that it is possible to defeat the Editor. If anyone cares to challenge our season record the magic number is 248.

Photographs: I am grateful to the following nature photographers for making their work available: Bob Busch, Bob Gehlert, Doug Gilroy, Fred Lahrman, Gary Anweiler and Keith Hodson.

Scientific Names of Mammals and Plants Mentioned in the Account

Mammals:

Badger: *Taxidea taxus*
Fox: *Vulpes vulpes*
Meadow Vole: *Microtus pennsylvanicus*
Richardson's Ground Squirrel or gopher (the former, proper name is little recognized outside of professional circles): *Spermophilus richardsonii*
Thirteen-lined Ground Squirrel: *Spermophilus tridecemlineatus*

Plants

Buckbrush: *Symphoricarpos*
Prickly Pear Cactus: *Opuntia*

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BURROWING OWL INFORMATION WANTED

In 1972, the Canadian Wildlife Service embarked on a program to locate Burrowing Owl sites on the prairies. W. E. Renaud did some initial work, began the compilation of a list of then known sites and solicited information on others. The project could not be completed at that time.

Anyone knowing the location of a nest burrow not previously reported is asked to inform the Canadian Wildlife Service, 115 Perimeter Road, Saskatoon, Sask. S7N 0X4. Information should include description of the location (section-township-range or distance and direction from the nearest town or other readily identifiable feature), and give details of the site (type of field, kind of ground cover). Please also give years or period the site was known to have been active. Although complete, accurate descriptions of currently active sites are the most valuable, any leads about the locations of breeding birds will be welcomed.

34th ANNUAL SASKATCHEWAN CHRISTMAS BIRD COUNT — 1975

Compiled by MARY I. HOUSTON, 863 University Drive, Saskatoon, Sask.

"Bird Count day always seems to come and go all too quickly. Again we must say we really enjoyed this year's count. The weather was most co-operative; most ideal conditions. I only wish there were more daylight hours; the day just goes too fast. One of the highlights of this count of course, is our regular noon meal. We head to the nearest Aspen bluff, get a fire going, boil us a tea pail and skewer up some farmer sausage and onions, which is later put between brown bread and cheese. A few cookies and home made chocolates top it off. (A quick but tasty meal in the bush)."

The above quotation from Lloyd Sperling of Dalmeny suggests the true spirit of Christmas Bird Counting. No other group activity has added so much to our knowledge of Saskatchewan bird distribution, as it is conducted at a time of year when few observers otherwise would make comprehensive observations.

Since the weather was generally mild over the Count period this year, counters were out in a record 52 areas (46 localities in 1972 was the next highest number). A total of 68 species was seen on Count days with one additional during the Count period.

Three Glaucous Gulls observed at Gardiner Dam by Wayne and Don Renaud and Bob Godwin added one more species to bring the 34-year total to 123 species with 6 additional species seen in Count period but not on Count day. Another unusual sighting during the Count period was of 1 Gray-crowned Rosy Finch seen at Spring Valley on Dec. 30. This species had only been reported on Christmas Bird Counts twice previously: Charles F. Holmes had reported 25 at Dollard in 1945 and 3 (2 Gray-crowned and 1 Hepburn's subspecies) in 1946.

Gray Partridge and Sharp-tailed Grouse reports and numbers were again low. Snowy Owls were not generally more numerous, but seemed concentrated in large numbers at Moose Jaw (9), Regina (15) and Tuberose (10).

Saskatoon had a heavy influx of Bohemian Waxwings, reporting 12,442 on Count day, while Regina had 14 species of waterfowl.

ASQUITH. Dec. 23; by skis around 80-acre field; 9 species, 59 individuals. — Don, Lynne and Muriel Carlson, Gary Entwistle.

BANGOR. Dec. 31; 14 miles by car and at feeder; mild, calm day; 7 species, 58 individuals. — Mrs. A. Thompson.

BIGGAR. Dec. 24; 131 miles by car in 6 hours, 9-1/2 miles on foot in 5-1/2 hours; temp. -12° to -3°C, wind SW 0-5 mph, clear; 10 cm snow; 14 species, 1,554 individuals. (Add: Blue Jay, 1, Jan. 3; Snow Bunting, 8, Jan. 1 and 2, and 50, Jan. 4). — Ron Chulach, Don Renaud, Wayne Renaud, Guy Wapple (compiler), Rodney Wapple.

BIG GULLY CREEK (15 miles NE of Maidstone). Dec. 19; 61 miles by car in 3 hours, 11 miles on foot in 8 hours; temp. -20° to -5°C, clear in AM becoming cloudy in PM, wind SE 15 mph; 25 cm snow; 22 species, 740 individuals. — Wayne Harris, Sheila Lamont.

BORDEN. Dec. 28; 43 miles by car in 2-1/2 hours, 1 mile on foot in 1/2 hour; temp. -3°C, wind SW 12 mph, partly cloudy; 5 cm snow; 8 species, 600 individuals. — John, Mary and Stan Shadick.

BROADVIEW. Dec. 23; 91 miles by car and 3 miles on foot in 6 hours; temp. -12°C, wind light, sunny; 17 species, 529 individuals. (Add: Ruffed Grouse, 4, Dec. 29; Gray Partridge, 9, Dec. 29; Horned Lark, 20, Dec. 25; Blue Jay, 1, Dec. 24). — David Chaskavich and Don Weidl.

CHELAN. Dec. 26; 1 mile along creek on foot, and about yard; temp. -3°C, no wind; 5 cm snow; 6 species, 26 individuals. — Joy Aspen, Jean Harris.

COLD RIVER. Dec. 20; 15 miles by car and 2 miles on foot along river; clear, calm, + 5°C; 20 cm snow; 11 species, 243 individuals. — William Haras.

DALMENY. Dec. 26; 24 miles by car in 1/2 hour, 42 miles on foot in 32 hours (4 parties); temp. -3° to 0°C, sunny, light SE wind; 13 species, 1,192 individuals. — Hon Dong, Curtis and Leslie Johanson, Brian, Gilbert, Lorne and Mara Sperling, Lloyd Sperling (compiler).

DILKE. Dec. 30; 33 miles by car and 2-1/2 miles on foot in 3-1/2 hours and around farmyard; temp. -5°C, wind E 20-30 mph, overcast then snow; 9 species, 263 individuals. (Add: Sharp-tailed Grouse, 6, Dec. 21, and 15, Jan. 4; Snow Bunting, 1,000, Dec. 25, and 1, Dec. 27, Jan. 2). — J. B., Margaret, Mr. and Mrs. S. R. Belcher.

DUPEROW-RUTHILDA. Dec. 28; 82 miles by car in 5-1/2 hours, 6 miles on foot in 3 hours; temp. -8° to -3°C, wind NW 0-10 mph, clear in AM, overcast in PM; 12 cm snow; 16 species, 2,089 individuals. (Add: Golden Eagle, 1, Jan. 4). — Ron Chulach, Paul de Bussac, Morris L'hoir, Murray Newton, Guy Wapple (compiler), Rodney Wapple.

EASTEND. Dec. 26; 3 miles on foot in 2 hours and 22 miles by car in 2 hours; temp. -10°C, calm; 5 cm snow; 8 species, 152 individuals. (Add: Evening Grosbeak, 25, Dec. 23 and 24). — Lois Clark, Gary Seib (compiler), Barbara, Beryl and Peter Shourounis.

EMMA LAKE. Dec. 20; 3-1/2 miles on foot in 3-1/2 hours; temp. -6° to -3°C, clear, calm; 15 species, 366 individuals. (Add: Goshawk, 1; Downy Woodpecker, 2; Bohemian Waxwing, 10; Red Crossbill, 6). — Kim Godwin.

ENDEAVOUR. Dec. 25; around farm yard and local garbage dump; temp. -6°C, calm, overcast; 9 species, 311 individuals. (Add: Downy Woodpecker, 1, Dec. 29; Evening Grosbeak, 5, Jan. 1; Pine Grosbeak, 12, Jan. 1; Common Redpoll, 12, Dec. 27). — William Haras.

FORT QU'APPELLE. Dec. 27; 35 miles by car, 2 miles on foot and 3 miles on cross-country skis in 5-1/2 hours; temp. -1° to 0°C, no wind, fine rain falling; 10 cm of damp snow; 16 species, 551 individuals. (Add: Rock Dove, 6, Dec. 26; American Robin, 1, Jan. 2; Pine Grosbeak, 3, Dec. 25). — Bernard de Vries, Kay de Vries (compiler), Alice Laing, D. Nevard.

GARDINER DAM. Dec. 22; 11 miles on foot in 3-1/2 hours and 45 miles by car in 2 hours; temp. -10° to -6°C, overcast, wind 0-12 mph; 8 cm snow; open water on river for 10 miles below dam and in part of reservoir; 23 species, 333 individuals. (Add: American Wigeon, 1, Jan 3; Horned Lark, 19, Jan. 3 — Wayne Harris, Sheila Lamont). — Bob Godwin, Don Renaud, Wayne Renaud (compiler).

HARRIS. Dec. 20; 36 miles on foot in 23-1/2 hours, 149 miles by car in 20 hours; temp. -11° to -1°C, clear, wind S-SW, 3-10 mph; 8 cm snow; 20 species, 2,673 individuals. — Bob Godwin, Bernie and Madeleine Gollop, Wayne Harris, Dale Hjertaas, Mary and Stuart Houston, Sheila Lamont, Don and Wayne Renaud (compiler), Guy and Rodney Wapple, David Surkan.

HEPBURN. Dec. 26; 10 miles by car, 1 mile on foot and about yard, plus sightings at feeder; clear, mild; 9 species, 59 individuals. — Margaret (compiler), Philip, Phyllis and Tena Siemens.

INDIAN HEAD. Jan. 4; 17 miles by car and on foot in 2 hours; temp. -18°C, light overcast, calm; 45 cm snow; 16 species, 1,315 individuals. (Add: Mallard, 30, Jan. 3; Goshawk, 1, Jan. 1; Bald Eagle, 2, Jan 1; Short-eared Owl, 1, Dec. 24; Horned Lark, 1, Dec. 30; Northern Shrike, 1, Jan. 1; Pine Grosbeak, 1, Jan. 1; Common Redpoll, 10, Dec. 30). — Betty and Cec Ashmore, Donald Ayers, Vic Beaulieu family, George Dragan, Marcella Horsman, Jim and Jean Howard, Jim and Bertha Lang, Rose and Roy McLaughlin, Dora Nichols (compiler), Lorne Scott, Mary and Ken Skinner, Fred Skinner, Jean Swinton, Charlie and Ruby Thompson.

KENASTON. Dec. 23; temp. -12° to -7°C, wind NW 15-20 mph; clear; 5 cm snow; 7 species, 331 individuals. (Add: Snowy Owl, 1, Dec. 28 and 29; Hairy Woodpecker, 1, Dec. 27; Horned Lark, 1, Jan. 1). — P. Lawrence Beckie (compiler), Joanne, Laurie and Theresa Beckie.

KINDERSLEY. Jan. 3; 12 miles by car; 2 species, 26 individuals. (Add: Bohemian Waxwing, 5, Jan. 1; Common Redpoll, 2, Jan. 1). — Jean Harris.

KUTAWAGAN LAKE (centered 12 miles north of Semans). Jan. 1; 63 miles by car in 4 hours and 1 mile on foot in 1 hour; temp. -25° to -20°C, cloudy with occasional fog patches, wind SW 9 mph; 18 cm snow; 7 species, 996 individuals. — Wayne Harris, Sheila Lamont.

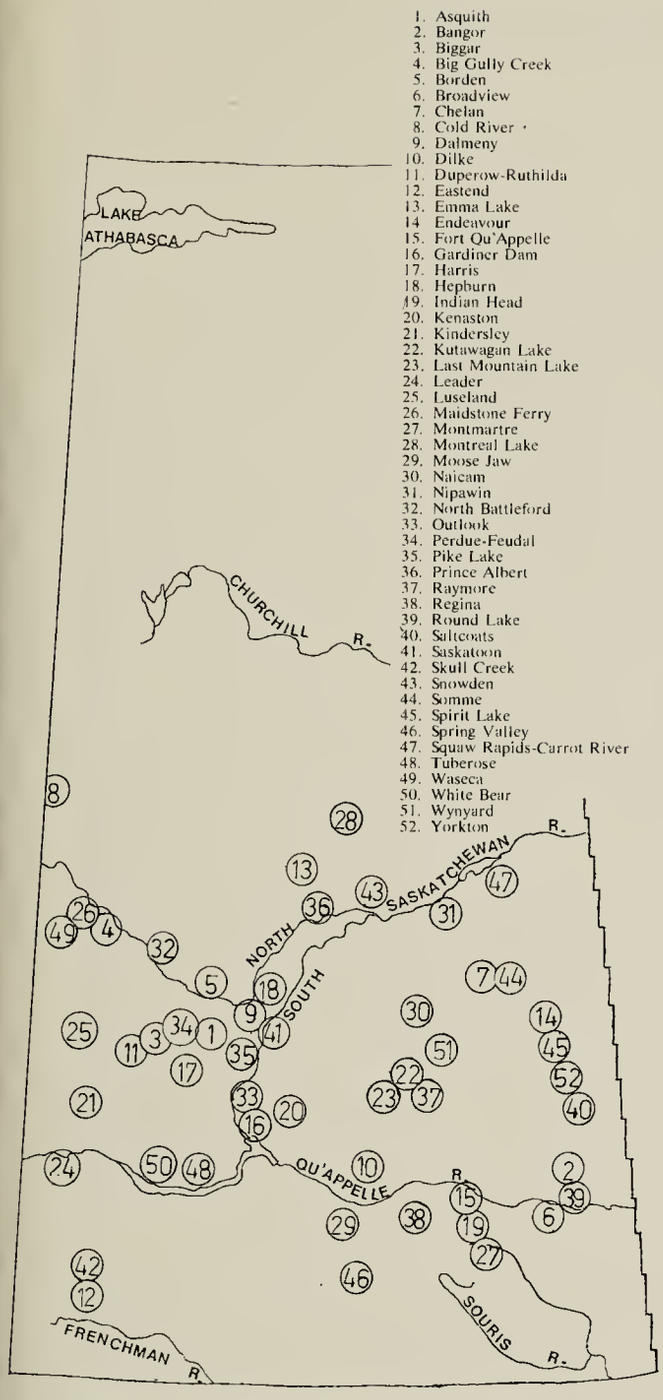
LAST MOUNTAIN LAKE (management unit and immediate area). Dec. 28; 95 miles by car in 6 hours and 1 mile on foot in 1 hour; temp.

Species recorded from more than one locality on Count day

	Asquith Dec. 23	Bangor Dec. 31	Biggar Dec. 24	Big Gully Creek Dec. 19	Borden Dec. 28	Broadview Dec. 23	Chelan Dec. 26	Cold River Dec. 20	Dalmeny Dec. 26	Dilke Dec. 30	Duperow-Ruthilda Dec. 28	Eastend Dec. 26	Emma Lake Dec. 20
Canada Goose													
Mallard						6		178					
Pintail													
Lesser Scaup													
Common Goldeneye								28					
Common Merganser													
Goshawk						1							
Golden Eagle						2							
Bald Eagle													
Merlin	1				1								
Ruffed Grouse	2			5				5					2
Sharp-tailed Grouse			27	22	20	87			4		3		
Ring-neck. Pheasant												2	
Gray Partridge			2							15	42	4	
American Coot													
Roek Dove			48			70			47	8	67		
Mourning Dove													
Great Horned Owl	1		2	1		1			1		2		
Snowy Owl					1				2		2		
Short-eared Owl													
Common Flieker													
Pileated Woodpecker								1					1
Hairy Woodpeeker		2	2	2		1	1		1	1		2	2
Downy Woodpeeker		1		4		3				2	1		
N. 3-t. Woodpecker				1									1
Horned Lark									1	2			
Gray Jay	1												12
Blue Jay				3				2					9
Black-billed Magpie	2	1	139	24	23	16	2	8	42	17	89	23	3
Common Raven				2			1	4					7
Bl.-cap. Chickadee	2	4	33	14	2	15	2	7	27		8	10	46
Boreal Chickadee	1			1									10
W-breasted Nuthatch													2
R-breasted Nuthatch				1									7
Brown Creeper													4
American Robin													
Townsend's Solitaire													
Gold.-cr. Kinglet				4									
Bohemian Waxwing	18		111	12		4			22	15	55		
Cedar Waxwing													
Northern Shrike						1							
Starling											4		
House Sparrow		6	871	51	150	127	15	3	209	167	1381	11	
Rusty Blackbird											1		
Evening Grosbeak			6	1		10	5				4		
Pine Grosbeak			4	61		3		4	2				
Hoary Redpoll			1	2							5		
Common Redpoll		14	307	455	402	181		3	76	36	410	75	30
Pine Siskin													
Red Crossbill				17		1							
W-winged Crossbill			1	32									230
Dark-eyed Junco													
Snow Bunting	25	30		25	1				758		15	25	
Single Speeies													
Total Species	9	7	14	22	8	17	6	11	13	9	16	8	15

Species recorded from more than one locality on Count day

	Endeavour Dec. 25	Ft. Qu'Appelle Dec. 27	Gardiner Dam Dec. 22	Harris Dec. 20	Hepburn Dec. 26	Indian Head Jan. 4	Kenaston Dec. 23	Kindersley Jan. 3	Kutawagan Lake Jan. 1	Last Mountain Lake Dec. 28	Leader Jan. 4	Luseland Dec. 24	Maidstone Ferry Dec. 23
Canada Goose		1											
Mallard		30	16										
Pintail													
Lesser Scaup													
Common Goldeneye		4	6										
Common Merganser			3										
Goshawk			1										1
Golden Eagle				2									
Bald Eagle			1										
Merlin				1									
Ruffed Grouse				1		4							
Sharp-tailed Grouse	1		4	217			1		2	16			3
Ring-neck. Pheasant													
Gray Partridge				48		18	16		12			28	
American Coot			1										
Rock Dove	1		12	78		12	4		8	8		4	
Mourning Dove													
Great Horned Owl	1		3	6	1	1							1
Snowy Owl			1	4		1		1				1	
Short-eared Owl										1			
Common Flicker													
Pileated Woodpecker													
Hairy Woodpecker	2	2	1	3	1	4							1
Downy Woodpecker		1	1	1		5				1		1	
N. 3-t. Woodpecker													
Horned Lark													
Gray Jay													
Blue Jay		2	4										3
Black-billed Magpie	6	4	15	247	2	14	14		46	38	12	37	9
Common Raven	29												
Bl.-cap. Chickadee	8	7	6	39	5	13						7	12
Boreal Chickadee													
W-breasted Nuthatch		1											
R-breasted Nuthatch						6							
Brown Creeper													
American Robin													
Townsend's Solitaire													
Gold.-cr. Kinglet				1									
Bohemian Waxwing		219	32	178	10	25						34	
Cedar Waxwing		21											
Northern Shrike													
Starling			6	1						1			
House Sparrow	81	180	14	943	12	1000	75		155	447	25	122	40
Rusty Blackbird													
Evening Grosbeak		20	35	14		7					10	2	
Pine Grosbeak			12		12								9
Hoary Redpoll		10		2						2			
Common Redpoll		48	86	765			71		692	588		105	275
Pine Siskin													
Red Crossbill					1								
W-winged Crossbill						4							
Dark-eyed Junco						1							
Snow Bunting	182		70	122	15	200	150	25	81	226		1186	121
Single Species		1	1										
Total Species	9	16	23	20	9	16	7	2	7	10	3	11	11



Map prepared by Wayne Harris

-15° to -5°C, clear, wind SW 13-22 mph; 20 cm of snow; 10 species, 1,328 individuals. — Wayne Harris, Sheila Lamont.

LEADER. Jan. 4; around the farm for 3 hours; temp. -12°C, clear; 30 cm snow; 3 species, 47 individuals. (Add: Sharp-tailed Grouse, 20, Dec. 24; Ring-necked Pheasant, 1, Dec. 21; Dark-eyed Junco, 1, Dec. 24). — Daisy D. Meyers.

LUSELAND. Dec. 24; 73 miles by car and 2 miles on foot in 5 hours; temp. -1°C, clear; 10 cm snow; 11 species, 1,527 individuals. (Add: Golden Eagle, 1, Dec. 27). — K. B. Finley, K. J. Finley, B. Holton.

MAIDSTONE FERRY (21 miles N of Maidstone). Dec. 23; 30 miles by car in 3 hours and 2 miles on foot in 1 hour; temp. -20° to -6°C, cloudy, wind SW 10 mph; 25 cm snow; 11 species, 475 individuals. (Add: Evening Grosbeak, 1, Dec. 24). — Wayne Harris, Sheila Lamont.

MONTMARTRE. Dec. 26; 2 miles on foot in 3 hours; temp. -10°C, sunny with cloudy periods; 28 cm snow; 11 species, 415 individuals. — Edwin Lesiuk.

MONTREAL LAKE. Jan. 4; 35 miles by car in 4 hours and 3 miles on foot in 2 hours; temp. -25° to -20°C, cloudy, wind NW 15 to 35 mph; 30 cm snow; 12 species, 128 individuals. — Wayne Harris, Sheila Lamont.

MOOSE JAW. Dec. 26; 96 miles by car and 8 miles on foot; temp. 0° to 3°C; light snow cover; 21 species, 2,300 individuals. (Add: White-winged Crossbill, 6, Dec. 23). — Bob Beattie, Russ Dennison, Alice and Carl Ellis, Doug Francis, Ruth Hilling, John Horton, Pat Kern, Cy and Leith Knight (compiler), Moray Lewis, Molly Ritchie, Jean Thomson.

NAICAM. Dec. 28; 1 mile on foot; temp. -10°C, wind 20 mph; 3 species, 37 individuals. — Ron Jensen.

NIPAWIN. Jan. 3; temp. -33°C, bitter N wind; 11 species, 611 individuals. — Mrs. Harvey Christiansen, John Comer, Stan Riome (compiler).

NORTH BATTLEFORD. Dec. 28; 6 miles on foot in 2-1/2 hours; temp. -3°C, partly cloudy, calm; 6 species, 55 individuals. — Ralph T. Cowell.

OUTLOOK. Dec. 23; 4 species, 536 individuals. (Add: Black-billed Magpie, 2, Dec. 30; Black-capped Chickadee, 2, Dec. 30; Bohemian Waxwing, 40, Dec. 30; Common Redpoll, 2, Dec. 30). — Harold Kvinge.

PERDUE-FEUDAL. Jan. 4; 76 miles by car in 3 hours, 7 miles on foot in 4 hours; temp. -13° to -8°C, wind SW 0 to 10 mph, overcast in AM light fog and snow in PM; 28 cm snow; 10 species, 1,724 individuals. — Ron Chulach, Morris L'hoir, Guy Wapple (compiler), Rodney Wapple.

PIKE LAKE. Dec. 24; 28 miles by car in 3 hours, 1-1/2 miles on foot in 1/2 hour; temp. -7°C, wind SE 5 mph, partly cloudy; 5 cm snow; 11 species, 329 individuals. — Robbie and Ron Bobowski, Mr. and Mrs. M. E. Christensen, John and Stan Shadick.

PRINCE ALBERT. Dec. 26; within 7 miles of the city, and at 12 feeding stations; 16 species, 615 individuals. — Ansgar and Christie Aschim, David and Peter Surkan.

RAYMORE. Dec. 29; 107 miles by car in 7 hours, 2 miles on foot in 2 hours; temp. -15° to -3°C, cloudy with occasional clear patches, wind NW 0-15 mph; 25 cm snow; 19 species, 1,367 individuals. — Chas, Greta and Wayne Harris, Sheila Lamont.

REGINA. Dec. 26; 522 miles by car in 38 hours, 50 miles on foot in 32 hours; temp.

Species recorded from more than one locality on Count day

	Montmartre Dec. 26	Montreal Lake Jan. 4	Moose Jaw Dec. 26	Naicam Dec. 28	Nipawin Jan. 3	North Battleford Dec. 28	Outlook Dec. 23	Perdue-Feudal Jan. 4	Pike Lake Dec. 24	Prince Albert Dec. 26	Raymore Dec. 29	Regina Dec. 26	Round Lake Dec. 28
Canada Goose												1639	2
Mallard			1									450	50
Pintail												3	
Lesser Scaup												12	
Common Goldeneye												2	
Common Merganser													
Goshawk													
Golden Eagle													
Bald Eagle													
Merlin												1	
Ruffed Grouse		1							1	1	1		1
Sharp-tailed Grouse	2		5		9				9		19		5
Ring-neck. Pheasant			1										
Gray Partridge			15					7				87	
American Coot												2	
Rock Dove	1		366				20	5		102	29	606	
Mourning Dove												1	3
Great Horned Owl	1		4			1					2	3	
Snowy Owl	3		9				1				1	15	
Short-eared Owl												8	
Common Flicker			1									1	
Pileated Woodpecker		1											
Hairy Woodpecker									2	2	1	1	2
Downy Woodpecker	1	1	3						5	3	1	3	2
N. 3-t. Woodpecker													
Horned Lark								10			5	39	
Gray Jay		6			1					1			
Blue Jay					11				4	8	1		
Black-billed Magpie	5	2	52		18	2		51	56	11	41	56	6
Common Raven		55			38					7			
Bl.-cap. Chickadee	2	6	4	2	11	1		6	26	10	8	9	11
Boreal Chickadee		9											
W-breasted Nuthatch													2
R-breasted Nuthatch			1									6	
Brown Creeper												1	
American Robin			1									1	
Townsend's Solitaire			1									1	
Gold.-cr. Kinglet												6	
Bohemian Waxwing			133			7		18		250	29	406	
Cedar Waxwing												53	
Northern Shrike												1	1
Starling			16								1	11	
House Sparrow	300		1000	25	344	23	15	1302	31	61	825	2494	12
Rusty Blackbird											4	2	
Evening Grosbeak			40		93				50	63	31	29	125
Pine Grosbeak			2	10	7				3	2	23	6	
Hoary Redpoll	1	3						15					2
Common Redpoll	4	22	135		61	21		244	142	6	328	374	25
Pine Siskin												25	
Red Crossbill										8		2	
W-winged Crossbill		20								80		59	
Dark-eyed Junco												1	
Snow Bunting	95	2	510		18		500	66			17	790	75
Single Species												9	
Total Species	11	12	21	3	11	6	4	10	11	16	19	47	16

Species recorded from more than one locality on Count day

	Saltcoats Jan. 3	Saskatoon Dec. 26	Skull Creek Dec. 29	Snowden Dec. 27	Somme Dec. 27	Spirit Lake Jan. 1	Spring Valley Dec. 30	Squaw Rpds.-Carrot Rv. Jan. 1	Tuberose Dec. 26	Waseca Dec. 26	White Bear Dec. 28	Wynyard Jan. 3	Yorkton Dec. 28	No. of Counts Species seen
Canada Goose														3
Mallard		38						12						9
Pintail		1												2
Lesser Scaup		3												2
Common Goldeneye		203						42						6
Common Merganser								2						2
Goshawk														3
Golden Eagle														2
Bald Eagle								1						2
Merlin		5												5
Ruffed Grouse	2	10		2	3	5				3				17
Sharp-tailed Grouse	16	44			2	3	42	12			4			26
Ring-neck. Pheasant		8									2			4
Gray Partridge	2	40			10		52		3		8			18
American Coot														2
Rock Dove		1107					26		2		50	8		25
Mourning Dove														2
Great Horned Owl		3					1			1		1		22
Snowy Owl		3	1				2		10		1			18
Short-eared Owl		2												3
Common Flicker		3												3
Pileated Woodpecker														3
Hairy Woodpecker	1	5	1		2	7		4				1		28
Downy Woodpecker		16	1		1	9	1	3		2			1	27
Nd. 3-t. Woodpecker				1										3
Horned Lark							12							6
Gray Jay		1			3			3						8
Blue Jay		21			1	1		1		2				15
Black-billed Magpie	8	343	4	1	9	17	7	24		4	17	10	3	48
Common Raven				10	12			34						11
Bl.-cap. Chickadee	3	208	7	13	14	34		5		6		6	2	42
Boreal Chickadee					9					2				6
W-breasted Nuthatch					2	2							2	6
R-breasted Nuthatch		34			1									7
Brown Creeper														2
American Robin		7												3
Townsend's Solitaire														2
Gold.-cr. Kinglet														3
Bohemian Waxwing		12442	34										29	22
Cedar Waxwing		90												3
Northern Shrike														3
Starling		11			1									9
House Sparrow	60	3717	10	27	39	216	540	2	30		240	77	300	47
Rusty Blackbird		1												4
Evening Grosbeak	14	109	3	19		4		5		8				25
Pine Grosbeak		32			12	7		8		116			3	21
Hoary Redpoll		52			1	15								13
Common Redpoll	5	767	101	1	2	159	118	585	70		40	44	35	42
Pine Siskin				12										2
Red Crossbill		23												6
W-winged Crossbill		19				2				12				10
Dark-eyed Junco														2
Snow Bunting	55	3			20		300	1005				535	30	34
Single Species			1		1			1			1			
Total Species	10	34	10	9	20	14	11	18	5	10	9	8	9	

Species recorded from only 1 locality on Count day

No.	*Species*	*Locality*	*Map No.*
1	Eared Grebe	Regina	38
2	Mute Swan	Regina	38
1	Blue-winged Teal	Regina	38
1	American Wigeon	Regina	38
2	Northern Shoveler	Regina	38
2	Redhead	Regina	38
2	Canvasback	Regina	38
1	Ruddy Duck	Regina	38
1	Prairie Falcon	White Bear	50
1	Peregrine Falcon	Squaw Rapids-Carrot River	47
3	Glaucous Gull	Gardiner Dam	16
1	Black-backed Three-toed Woodpecker	Somme	44
1	Brewer's Blackbird	Fort Qu'Appelle	15
2	Tree Sparrow	Skull Creek	42
21	Lapland Longspur	Regina	38

-11° to -7°C, partly cloudy, clearing in PM, wind ESE 6 to 12 mph; 47 species, 7,239 individuals. — Jessie Bailey, Margaret Belcher, Mr. and Mrs. Tom Beveridge, Eric Cooke, Mae Cross, Robyn Donison, Dick and Maureen DuWors, David Duffis, Lucy Eley, Mr. and Mrs. Murray Fines, Wayne Gemmell (compiler), Al Harrison, Val Harrison, Jim Hines (compiler), Rose Hines, Jim and Shirley Jowsey, Darlene Kauk, Dave Kelley, Eric Lang, Tony Lang, George Ledingham, Madelaine McGinnis, Will Marchuk, Helen Morrison, Sally Moss, Keith Neufeld, Roxanne Pelletier, Connie Pratt, Joe Roberts, Con Rosenfeld, Anne Russon, Bill Russon, John Russon, Rick St. Pierre, Allen and Diane Smith, Joyce Swenson, Frank Switzer, Jay Van Oostdam, Christophe Wilhelm, Pierre Wilhelm, Rita Wilhelm, Cheryl Zagozeski.

ROUND LAKE. Dec. 28; 10 miles along lake and at feeder; mild; 16 species, 324 individuals. — Doug Francis.

SALTCOATS. Jan. 3; 44 miles by car in 3-1/4 hours; temp. -23°C, calm, sunny; 10 species, 166 individuals. — Robert Barnhart.

SASKATOON. Dec. 26; 296 miles by car in 41-1/2 hours, 75 miles on foot in 48 hours; temp. -20° to -10°C, wind light, mostly cloudy; 34 species, 19,371 individuals. (Add: Brown Creeper, 1, Dec. 24). — Ann Marie and Norman Ash, Ron Bobowski, Murray and Ron Bremner, Pern Cordery, Cliff Finlay, Doug Finlay, Muriel Galloway, Marie Gillespie, Bernie, Madeleine and Michael Gollop, Jack and Louise Greaves, Wayne Harris, Jim Heffernan, Clarence, Dave, Don, Mary, Stan, and Stuart Houston (compiler), Grev Jones, Sheila Lamont, Keith Martens, Don, Elizabeth, Joanne and Margaret McRobbie, Betty Mundy, Arnold Nijssen, Pat O'Neil, Stuart Rasmussen, Wayne Renaud, Adam Schmidt, John, Mary and Stan Shadick, Alan, Edward and Gary Smith, Sheldon Snatinsky.

SKULL CREEK. Dec. 29; on foot 1-1/2 miles up the creek; temp. -12°C, light wind, clear; 10 species, 164 individuals. — Helen and Ray Schuler.

SNOWDEN. Dec. 27; 7 miles by car and 4-1/2 miles on foot; temp. -1°C, freezing rain, wind SW 5 mph; 9 species, 86 individuals. — D. A. Jacura, Juliana Soroka (compiler).

SOMME. Dec. 27; 20 miles by car and 2 miles on foot; temp. -5°C; 20 species, 145 individuals. (Add: Rock Dove, 10, Dec. 26; Horned Lark, 1, Dec. 31; Brown Creeper, 1, Dec. 29; White-winged Crossbill, 2, Dec. 29). — David Black, Donald and Ronald Hooper.

SPIRIT LAKE. Jan. 1; 53 miles by car in 4 hours, 2 miles on foot in 1-1/2 hours; temp. -20° to -14°C, wind light, cloudy, clearing in PM; 15 cm snow; 14 species, 481 individuals. (Add: Goshawk, 1, Dec. 22; Great Horned Owl, 3, Dec. 29; Common Raven, 5, Dec. 21; Northern Shrike, 1, Jan. 3; Snow Bunting, 2, Jan. 4). — Bill and Joyce Anaka, Mrs. Gunn.

SPRING VALLEY. Dec. 30; 34 miles by car and around farm; temp. -5° to -1°C, wind light, overcast; about 10 cm snow; 11 species, 1,101 individuals. (Add: Golden Eagle, 1, Dec. 23; Prairie Falcon, 1, Dec. 26; Bohemian Waxwing, 18, Dec. 20; Gray-crowned Rosy Finch, 1, Dec. 30). — Adeline, Allan, Flossie (compiler), Larry and Nick Bogdan.

SQUAW RAPIDS-CARROT RIVER. Jan. 1; 8 hours; temp. -21°C, calm, overcast to 4 PM; 18 species, 1,749 individuals. — John Comer, Terry Klassen, Roland Lockhart, Gladys and Stan Riome (compiler).

TUBEROSE. Dec. 26; 40 miles by car in 2 hours; temp -6° to -4°C, calm, sunny; 5 species, 115 individuals. (Add: Golden Eagle, 1, Dec. 20). — Cliff Matthews.

WASECA. Dec. 26; 2-1/2 miles on foot around farmstead and marsh area; temp. -4°C, sunny, light SE wind; 20 cm snow; 10 species, 156 individuals. (Add: Common Redpoll, 50, Dec. 22 and 24; Snow Bunting, 100, Dec. 22 and 24). — Darcy, Colleen, Maureen, Michelle, Russell and Stuart Bexson, Christine Pike (compiler).

WHITE BEAR. Dec. 28; 2 miles by car and 4-1/2 miles on foot; temp. -1°C, cloudy, light west wind; 5 to 15 cm crisp snow; 9 species, 363 individuals. (Add: Golden Eagle, 2, Dec. 29). — Oran Cates, Anne, Chris, Eric and Mark Christenson, Leroy Clark, Gary, Gerald, Laine and Sig Jordheim (compiler), David Lowe, Kenny Markella, Dan Schuler, Doug Stepples.

WYNYARD. Jan. 3; 5 hours and 10 miles by car; temp. -29°C, sunny, calm; 8 species, 682 individuals. — John and Sherry Gulley.

YORKTON. Dec. 28; temp. -2°C, wind 10 mph, clear; 9 species, 405 individuals. — Margaret Bromley (compiler), P. Pawluck, T. Pawluck.

WANTED: NORTHERN MANITOBA NESTLINES

An interesting report comes from Klon Peterson, a young fellow who lives with his family at Prospector Ranger Tower, 11 miles north of The Pas, Manitoba. Klon set out some bluebird nest boxes in 1975 and, although he had no bluebird nestings, the birds were seen in that area, which seems to be quite far north. Four Tree Swallows nested in the boxes, hatching 16 young. Wrens also used one box. We hope Klon will find time to build more nest boxes this winter and report to us again next year.

If anyone living in that area or south of The Pas is interested in establishing a nestline, it would be a worthwhile project because we would like to find out how far north our bluebirds do go. One next box at Wabowden, some 160 miles northeast of The Pas, was set out but owing to flooding it was not checked. Do we have any interested readers in that area? — *Jim Spear*, Russell, Manitoba.

FORT SMITH, N.W.T., CHRISTMAS BIRD COUNT

Compiled by ERNIE KUYT, Box 508, Fort Smith, N.W.T.

DATE: Dec. 28, 1975.

WEATHER: Cloudy with sunny intervals; temperature about 0°C; calm; snow depth about 40 cm; daylight 9 AM to 4 PM.

ROUTES COVERED: Fort Smith to Fox Holes road intersection; Fort Smith along Pine Lake road to Salt River; Fort Smith along Hay Camp road to Wood Buffalo National Park border. 100 miles by car in 3 hours.

BIRDS SEEN: Spruce Grouse, 13; Ruffed Grouse, 1; Rock Dove, 9; Hawk Owl, 1; Great Gray Owl, 1; Gray Jay, 31; Common Raven, 178; Boreal Chickadee, 1; House Sparrow, 10; Snow Bunting, 7. 10 species, 252 birds. Add: Willow Ptarmigan, 1, Dec. 27; Pileated Woodpecker, 1, Dec. 21; Downy Woodpecker, 1, Dec. 27; Black-capped Chickadee, 2, Dec. 27.

CONTRIBUTORS: Don, Isabel and Tom Brannigan, Dan and Linda Graham, Brian, Jeremy, Joyce and Tyler Johnson, Elsie, Ernie (compiler), Jonathan and Pamela Kuyt, Bernadette McGill, Randy Mitchell.

CALGARY BLUEBIRD TRAIL — 1975

By HAROLD W. PINEL, 1017 - 19th Ave. N.W., Calgary, Alberta. T2M 0Z8
and CAROL J. ROBINSON, Group Box 3, 9th Ave. and 22nd St., Calgary, Alberta.

Eighteen new bird houses were added to the Calgary Bluebird Trail in the early spring of 1975 bringing the total number of boxes along the trail to 400. As in the spring of 1974, all nesting boxes were cleaned out and sprayed with a creolin solution. Each nesting box was checked and the contents recorded four times between the third week in May and the first week in August.

Of the 400 boxes, 34 were vandalized before nesting began, 9 after nesting started and only 1 was unoccupied on all visits, leaving 356 boxes used by birds. Excluding the 34 vandalized before the nesting period, 97.3% of the available nesting boxes were occupied. There were 454 bird nests and 7 Deer Mice nests in the 356 nesting boxes, some houses being used up to four times.

Table 1 analyzes the nesting success and losses for 1975. The average clutch size for Mountain Bluebirds was 5.33 and for Tree Swallows 5.86. In 35 nest boxes there were two or more broods by the same species — 27 of the boxes being occupied by House Sparrows and 8 by Mountain Bluebirds. Two species nested in the same box in 39 cases, as follows: sparrow then swallow, 18; sparrow then wren, 2; sparrow then bluebird, 1; swallow then sparrow, 3; swallow then wren, 2; bluebird then swallow, 9; bluebird then sparrow, 3; bluebird then wren, 1.

The total losses for all species from the egg-laying stage to the time that the young left the nest was 959 (39.5%) of which 463 (19%) were House Sparrow losses due to destruction by the authors. The major causes of the losses were (a) competition between species, especially Mountain Bluebirds and Tree Swallows, (b) road construction on a short stretch of the route, and (c) "blowfly" infestation of some young Tree Swallows.

In the final analysis, the success of the trail in terms of number of young that left the nests in 1975 was very similar to that of 1974, with an increase of 92 fledged young in 1975.

Table 1. Summary of Nesting Success by Species, Calgary Bluebird Trail, 1975. (Numbers in parenthesis are losses from the previous stage.)

Species	*Nests*	*Eggs Laid*	*Eggs Hatched*		*Young Fledged*		*Young Left Nest*	
Mountain Bluebird	61	325	231	(94)	204	(27)	204	(0)
Tree Swallow	272	1593	1293	(300)	1225	(68)	1225	(0)
House Sparrow	110	463	155	(308)*	0	(155)*	0	(0)
House Wren	10	40+	40+	(0)	40+	(0)	40+	(0)
Black-capped Chickadee	1	7	3	(4)	0	(3)	0	(0)
Totals	454	2428+	1722+	(706)	1469+	(253)	1469+	(0)

*Destroyed by authors.

OSPREY WITH MUSKRAT

By PATRICIA R. KERN, 1053 Chestnut Ave., Moose Jaw, Sask., S6H 1A7

On October 19, 1975, a sunny, warm fall day, I drove down a short side road from the highway to look at the swans and ducks. At the marshy west end of Crooked Lake in the Qu'Appelle Valley about 150 feet north along the shore on a mud bar, an Osprey was standing, biting at something. Probably because its feathers were ruffled, the bird seemed very large; its breast was darkly spotted and back feathers were edged in white. Several times the bird flew up a few feet and then pummelled down onto its prey with its talons. Disturbed by my car and others passing on the main road, the Osprey moved over to another mud bar several hundred yards away. When it flew, the limp form of a muskrat was held by the talons of one foot. The hawk then proceeded to feed on the animal, later moving further into the marsh to a muskrat house where it continued feeding for another 10 to 15 minutes before leaving the area.

I have seen Ospreys twice at Buffalo Lake north of Moose Jaw: one made a steep dive into the water for a fish, and another rested in a tree by the lake. I have also seen them at Round and Crooked Lakes in the Qu'Appelle Valley. They seem to be scarce migrants along the chain of lakes.

About 95-98% of the Osprey's food consists of fish, hence its common name of "fish hawk". It takes mostly non-game fish such as catfish, suckers, carp, etc., but also perch, trout and many others, occasionally even raiding fish hatcheries. Rarely have they been noted taking frogs, water snakes, birds, small ducks, chickens and small mammals, but muskrats are not listed.

A. C. Bent states that, if Ospreys take other kinds of food besides fish, it must be on rare occasions.[1] Sprunt states that any variation from a fish

Osprey at nest Frank Scott

"diet is out of the ordinary and can fairly be considered an abnormality."[3] Other authors say that if anything but fish is taken, it is probably because of extreme hunger; however, Grossman and Hamlet report Ospreys have been known to take other prey as mentioned above.[2]

[1]BENT, A. C. 1961. *Life Histories of North American birds of prey. Part 1.* Dover, N.Y. 409 p.

[2]GROSSMAN, M. L., and JOHN HAMLET. 1964. *Birds of prey of the world.* Clarkson N. Potter, New York. 496 p.

[3]SPRUNT, A., Jr. 1955. *North American birds of prey.* Harper & Brothers, New York. 227 p.

FURTHER NOTES ON BIRDS AND MAMMALS OF THE CARIBOU MOUNTAINS, ALBERTA

E. OTTO HÖHN, Dept. of Physiology, University of Alberta, Edmonton, Alta.
RODNEY D. BURNS, Provincial Museum of Alberta, Edmonton, Alta.

In the hope of obtaining proof of local nesting of three bird species of special interest previously found in this area, namely the Red-throated Loon, Northern Phalarope and Gray-cheeked Thrush, we made another visit June 18 to 25, 1975, to the eastern part of Margaret Lake (the largest lake of the area, lying west of Eva Lake and erroneously not labelled on the sketch map in our earlier publication, *Blue Jay* 1975, 33: 74) and to Rock Island Lake. E.O.H. revisited one lake on July 24 and 25. The account below is restricted to further notes on these species, species not recorded earlier (4 birds and 1 mammal) and notes which modify our earlier account of the local status of a few others.

BIRDS

Red-throated Loon: Earlier observations suggested that a few pairs of these loons were breeding near Rock Island Lake; this year's investigation added similar data from the eastern part of Margaret Lake, thus enlarging the apparent local nesting range. Two of these loons, which kept together as if paired, occupied a small lake near the mouth of the creek which drains Rock Island Lake into Margaret Lake throughout our stay here, June 18 to 22. On the evening of the first day, a third loon of this species arrived and swam up to the couple. All three performed what appeared to be a greeting ceremony, swimming close together with beaks pointed down at an angle of 45°; then one or, possibly, both members of the couple rushed at the invader, which escaped by diving. After this, for the hour we watched whenever the intruder surfaced, it was approached and attacked by one of the couple. By next morning the third loon had disappeared. Though we walked all around the shore of this small lake, no nest was found. When E.O.H. revisited it on July 24 there were still two Red-throated Loons idly floating about close together. A check of the most likely part of the shoreline for a nest failed to reveal one and the undisturbed behaviour of the birds made it very unlikely that they had a nest. This may have been a late nesting pair. Nero (1963, *Birds of the Lake Athabasca Region, Saskatchewan)* found fresh eggs as late as August 3 at about the same latitude in northern Saskatchewan. An attempt to check the site once more in early October for young was foiled by weather conditions on the plateau which precluded flying.

One other Red-throated Loon was seen on July 24 leaving the eastern point of Margaret Lake (7 miles east of the small lake referred to above) flying in a northerly direction with a fish in its beak.

Shoveler: Two males were seen by R.D.B. on Margaret Lake on June 20.

Scaup (? species): As in previous years, Scaup of which we obtained good views in flight seemed to both of us to have the wing patterns of the Greater Scaup. One egg from a nest of nine found on a creek draining into Margaret Lake on June 18 measured 61 x 41 mm. Bent (*Life Histories of North American Wildfowl*, part 1, 1923) gives 62.4 x 43.7 as the average dimensions of Greater Scaup eggs with extremes of 68.5 x 44, 59 x 48 and 54.5 x 41.5 and 66.3 x 40.7; for Lesser Scaup

average dimensions were 57.1 x 39.7 with extremes of 61.5 x 38, 59 x 42.5 and 50 x 35.5. Hence the egg we found is much more likely to have been that of a Greater than a Lesser Scaup.

It is thus likely, but further evidence is required, that Greater Scaup breed in the Caribou Mountains. It should also be pointed out that the identification of Lesser Scaup which we previously reported in this area was simply based on probability, in accord with current knowledge of the status of the two species in Alberta. It may ultimately be found that only Greater Scaup breed in the Caribou Mountains.

Old Squaw: R.D.B. saw a male on a small lake west of Rock Island Lake on June 23. The next day E.O.H., while approaching another small lake a little over a mile from the first, heard the spring call of a male and then saw the bird on the water. Both males were in rather discoloured breeding plumage, so our sightings may have been of one and the same bird. This second June sighting within 3 years suggests that local summering of non-breeders is not as exceptional as we believed in 1973. The species occurs regularly as a spring migrant on Lake Athabasca and probably overflies the Caribou Mountains on spring migration.

Marsh Hawk: A female was seen at Rock Island Lake on June 24.

Sora: The characteristic descending whinnying call of this species was heard repeatedly during our stay near the mouth of the creek which drains Rock Island into Margaret Lake, June 18 to 21.

Common Snipe: Not as local as our previous account suggests; breeds. Seen this year on the smaller lakes between Margaret and Eva Lakes as well as on Rock Island Lake and heard drumming near Margaret Lake. One flushed at Rock Island Lake on June 23 acted as if it had young. At one of the first-mentioned sites an adult was flushed from a downy young on July 24.

Northern Phalarope: When the small lake where a Northern Phalarope had been found in June, 1973, was revisited on June 22 and 23, a phalarope of this species, judged to be a male, was seen on both days. Like the 1973 bird it showed intense anxiety at the observer's presence along a zone of some 250 yards of marshy foreshore. This particular lake has a more extensive marshy edge than other small lakes we visited and appears to be a breeding site of this species.

Herring Gull: R.D.B. found 9 nests, some with eggs and some with chicks on a visit to the small nesting colony on Rock Island Lake on June 22.

Alder Flycatcher: Seen in June in areas additional to those we recorded earlier, namely near Margaret Lake about 8 miles west of where they were heard in another year and at Rock Island Lake.

Barn Swallow: A nest with young was found in one of the buildings at Margaret Lake Fish Camp on July 24. Probably the swallows seen there in 1973 were also breeding.

Gray-cheeked Thrush: Much scarcer in June than in the same month in 1973. Only one, with food in its beak, was seen, though a few others were heard singing, all near Rock Island Lake.

Yellowthroat: Two heard singing in June, 8 miles from where previously recorded; evidently less local than we believed.

Blackpoll Warbler: A nest with five eggs was found June 19 near Margaret Lake. It was in a small dead spruce about 8 inches above the ground.

Bohemian Waxwing: An apparent pair near Margaret Lake, June 21; three or more near this area on July 23.

Cedar Waxwing: Two briefly perched on alders near our Rock Island Lake camp on June 24.

MAMMALS

Several Heather and Gapper's Red-backed Voles were again trapped at Rock Island Lake in June as well as a Meadow Vole. The last-mentioned

species is evidently not as local as our previous account suggested.

Short-tailed Weasel: On July 24 E.O.H. had a brief view of the rear half of one disappearing under one of the buildings at the Margaret Lake Fish Camp. As its black tail tip was clearly seen it could not have been a Least Weasel and the area is well beyond the range of the Long-tailed Weasel.

Moose — Fred Lahrman

SASKATCHEWAN CHRISTMAS MAMMAL COUNT — 1975

Compiled by WAYNE C. HARRIS, Box 93, Raymore, Sask., S0A 3J0.

Mild weather resulted in excellent coverage of the province, with 28 localities reporting, compared to only 16 last year. The number of species was also up from 15 species last year to 23 species this year. Counts taken in or near the forest edge resulted in several new species (Gray Wolf, Moose, and Woodland Caribou). Unusual was a Franklin's Ground Squirrel (a species which normally hibernates), seen near Asquith. The warm weather may account for this.

Populations in general appear to be remaining rather stable, with possibly the exception of the Lynx. This year it was reported only once, compared to two last year, and the coverage this

	Sorex sp.	Red Fox	Coyote	Gray Wolf	Weasel sp.	Long-tailed Weasel	Mink	Striped Skunk	Lynx	White-tailed Jack Rabbit	Snowshoe Hare	Nuttall's Cottontail	Franklin's Ground Squirrel	Red Squirrel	Mouse sp.	Meadow Vole	Muskrat	House Mouse	Porcupine	Mule Deer	White-tailed Deer	Moose	Woodland Caribou	Total Species
Asquith	—	—	*	—	—	—	—	—	—	*	—	—	1	*	*	—	—	—	—	—	*	—	—	6
Biggar	—	—	—	—	—	—	—	+	—	—	1	—	—	—	—	—	—	—	1	—	*(10)	—	—	4
Big Gully Creek	—	—	*	—	*	—	*(1)	—	—	—	*	—	—	29	—	1	—	—	—	—	*	—	—	8
Borden	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Dalmeny	2	—	—	—	*	—	*	—	*	1	2	—	—	2	*	—	—	—	*	—	—	—	—	9
Duperow-Ruthilda	+	—	—	—	—	—	—	—	—	1	1	—	—	—	*(1)	—	1	—	—	—	*(12)	—	—	6
Emma Lake	—	—	—	—	—	—	—	—	—	—	—	—	—	*	—	—	—	—	—	—	—	—	—	1
Fort Qu'Appelle	—	*(1)	*(1)	—	*(2)	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	*	—	—	5
Gardiner Dam	—	—	—	—	—	—	—	—	—	+	1	—	—	—	—	—	—	—	—	—	*	—	—	3
Harris	—	*	1	—	*	1	—	—	—	*	*	—	—	—	—	—	—	1	*	1	20	—	—	10
Kutawagan Lake	1	—	*	—	—	—	—	—	—	17	—	—	—	—	—	—	—	—	*	—	—	—	—	4
Last Mountain Lake	—	*	*	—	*	—	*	*	—	3	—	—	—	—	—	—	—	—	1	—	*	—	—	8
Luseland	—	1	—	—	—	—	—	—	—	4	1	—	—	—	—	—	—	—	—	—	—	—	—	3
Maidstone	—	—	1	—	*	—	*	—	—	—	*	—	—	2	—	—	—	—	1	—	*	—	—	7
Montmartre	—	+	—	—	—	—	*	—	—	—	—	—	—	—	—	—	—	—	—	—	*	—	—	3
Montreal Lake	—	—	*	*(1)	*(1)	—	*(1)	—	—	—	*	—	—	3	—	—	—	—	—	—	*	—	*(2)	8
Naicam	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
North Battleford	—	*	*	—	—	—	*	—	—	—	*	—	—	—	—	—	—	—	*	—	*	—	—	6
Perdue-Feudal	—	—	—	—	1	—	—	—	—	1	2	—	—	—	—	1	—	—	—	—	—	—	—	4
Piapot	—	—	*(1)	—	*(1)	—	—	*(2)	—	*(3)	—	*(2)	—	—	*(5)	—	—	—	—	—	*(6)	—	—	7
Prince Albert	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2
Raymore	—	*	*	—	—	—	—	—	—	*	*	—	—	—	—	—	—	—	*	—	*	—	—	6
Round Lake	—	*	*	—	*	—	*	—	—	*	*	—	—	—	*	—	—	—	—	—	*	—	—	8
Saltcoats	—	—	*(2)	—	*(3)	—	—	—	—	*(9)	*(18)	—	—	—	—	—	—	—	*(2)	—	*(29)	—	—	6
Snowden	—	—	—	—	*	—	—	—	—	—	*	—	—	7	—	1	—	—	—	—	*(3)	*(1)	—	6
Spirit Lake	—	—	*(1)	—	*(5)	—	—	—	—	*(5)	*(3)	—	—	9	—	—	—	—	*(1)	—	—	—	—	6
Waseca	—	*(1)	*(4)	—	—	—	—	—	—	—	*(1)	—	—	2	—	—	—	—	—	—	*	—	—	5
White Bear	—	—	1	—	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	4	—	—	—	4
Total Locations	1	11	16	1	13	3	7	3	1	16	16	1	1	13	5	3	2	1	10	2	18	1	1	

year was almost double last year's, with some counts in good areas for this species.

For weather, coverage and participants, please refer to Christmas Bird Counts elsewhere in this issue. Mouse tracks, even though identified to species, have been recorded under Mouse.

Symbols found in the table are as follows:

* Identified by tracks, with the number of animals by tracks in parenthesis.

\+ Seen during count period but not on count day.

D Freshly dead animal seen.

HITCH-HIKING MARMOTS

By KEITH SHAW, Cardston, Alta.

In June, 1969, I was driving with Don Shaw of Cardston, Alberta, on Going-To-The-Sun Highway in Glacier National Park, Montana. We had stopped just above the Weeping Wall to look at a large Whistling Marmot (*Marmota caligata*) by the road edge. We were distracted for a moment while getting out camera gear and when we looked for the marmot it was gone. Concluding that it had gone into a burrow since the weather was chilly, we left the area and continued without stops across Logan Pass and down the east side to Rising Sun Campground where we began to prepare lunch. A piercing whistle from beneath the car sent us to check the engine compartment for mechanical failure. Under the hood near the engine was the large marmot from the Weeping Wall, apparently unhurt but also unwilling to leave. We tried to dislodge it but then decided it would be best to finish our lunch and drive the hitch-hiker back across Logan Pass to where we had picked it up. Several whistles later and just as we were about to leave, the marmot voluntarily dropped to the ground and was last seen under a California-licensed minibus. This marmot had ridden 15 miles under our car.

Several days later I learned of a Cardston farmer who had made the same Weeping Wall stop in 1968 and had then driven directly home with only a brief stop at the Carway Customs. Shortly after arrival in Cardston a Whistling Marmot was noticed on the ground under the car. It was chased out and went directly under the farmer's truck where it disappeared in the engine compartment. Later that day the truck was driven north on the Blood Indian Reserve and parked. Shortly thereafter the marmot left the truck and ran into a grain field. This animal had travelled under two vehicles a total of 60 miles.

District Ranger Robert Frauson of Glacier National Park, Montana, reported the following incident.[3] A government truck stopped in front of an apartment in the St. Mary Ranger Station housing area where a very hot and panting Whistling Marmot fell out from the engine compartment. Karen Frauson put the marmot in a box and took it into the shady woods to allow the animal to cool. She checked about a half hour later but the marmot was dead. It did not seem to be hurt and apparently died of the heat. Late June was very warm and engine heat would add to the marmot's thermal overload.

The truck had been in Whistling Marmot habitat at Logan Pass earlier in the day.

On a cool June morning in 1973 Cardston High School teacher William Richards drove his half-ton truck to a nearby field to load old fence posts. A Yellow-bellied Marmot (*Marmota flaviventris*) left the post pile and climbed up near the warm engine and refused to leave. Mr. Richards drove home, unloaded the posts and drove to the Cardston High School. The truck was put in the school shop and with the aid of students the animal was dislodged and held captive for the day. In the afternoon Mr. Richards took the marmot back to its field and turned it loose. This marmot had travelled 7 miles under the truck.

Occasional sightings of marmots in unlikely places have been reported. In September, 1975, a neighbor drew my attention to a Yellow-bellied Marmot in a culvert near the Chinook Senior Citizens' Home in Cardston. The nearest known colony is 4 miles on up Lee Creek near a ranch road. Perhaps it had hitch-hiked to town.

Banfield's report of a single specimen of Yellow-bellied Marmot taken from a rockslide in Waterton Lakes National Park where no recent signs of the species exist could well be that of a single hitch-hiking pioneer from a colony in northern Montana or southern Alberta.[1]

Soper reported an extraordinary record of a large male Yellow-bellied Marmot collected on the semiarid plains near Lake Newell, Alberta, on May 10, 1957.[4] This animal may also have been a hitch-hiker from some distant colony.

Glacier National Park Seasonal Naturalist Marc Boyd notes that Whistling Marmots will often come close to a quietly seated hiker for no other apparent reason than heat-seeking.[2]

Colonization of new areas by hitch-hiking marmots is unlikely but possible. Simultaneous hitch-hiking by a pair has not been observed. However, should a pregnant female survive a vehicle ride and disembark at a location favorable to survival, then the probability of colonizing a new site is enhanced.

Roadside Whistling Marmots are of great interest to tourists in Glacier National Park and marmot loss from within the park due to hitch-hiking is a problem worthy of consideration. In fact, hitch-hiking may account for the unexplained disappearance of roadside marmots on Going-To-The-Sun Highway. Roads in Waterton Lakes National Park do not cross typical marmot habitat and, therefore, populations of Whistling Marmots are not apt to decline because of hitch-hiking.

[1]BANFIELD, A. W. F. 1974. *The mammals of Canada*. Univ. of Toronto Press, Toronto. 438 p.

[2]BOYD, MARC. 1975. Personal communication to the author.

[3]FRAUSON, ROBERT. 1975. Personal communication to the author.

[4]SOPER, J. D. 1964. *The mammals of Alberta*. Queen's Printer, Edmonton. 410 p.

CHURCHILL RIVER ISSUE

Issue No. 15 of *The Musk-Ox* (February, 1975) is devoted to several aspects of the Churchill River. The seven articles listed below fill the first 64 pages, while the remaining 14 pages deal with other aspects of the North.

The proposed Wintego hydroelectric project on the Churchill River, Saskatchewan — SASKATCHEWAN POWER CORPORATION

The Churchill-Reindeer rivers area: evolution of the landscape — WALTER KUPSCH

A brief history of the Churchill River — W. A. DAVIES

Areas of initiation in the political geography of aboriginal minorities — STEWART RABY

The Churchill River: a resource for conservation and recreation — CLAUDE MONDOR and PRIIDU JUURAND.

Hydroelectric developments in Northern Canada: a comparison with the Churchill River project in Saskatchewan — DON GILL and ALAN COOKE

Alternate energy sources: the A, B, C's of energy — J. W. T. SPINKS

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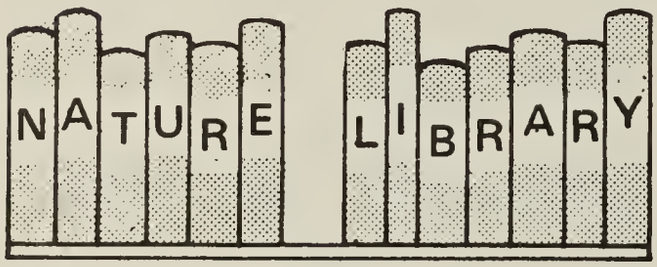

WHERE TO GO BIRDWATCHING IN CANADA

By David Sterling and
Jim Woodford,
Hancock House Publishers,
Saanichton, B.C.,
1975. 127 p.

This pocket-sized paperback is a condensation of the four regional bird books published in the 1970's by the same group. Based on a comparison with *Some of the common and uncommon birds of Alberta, Saskatchewan and Manitoba,* reviewed in the March 1974, *Blue Jay*, it contains the same errors of commission and omission, including at least 46 mistakes in the checklist for the Prairie Provinces. Except for the covers, the 78 photographs are black and white and all are taken from the regional versions. The cover claims that the book is "a guide to hundreds of special locations" for birding; my count showed 79 discussed in the equivalent of about 35 pages of text.

There is a list of Bird Clubs but the addresses often do not agree with the *Canadian Conservation Directory 1975/76* (published by Canadian Nature Federation, Ottawa). A person interested in birding away from home would be better advised to buy this Directory for $2.00 and write the appropriate club for information than to pay $3.95 for *Where to go . . . J. B. Gollop.*

Letters

A TAME BLUEBIRD

My wife and I are proud to have been associated with Dr. John Lane in putting out and taking care of a nest line of about 150 boxes in this vicinity. We have thoroughly enjoyed the experience for a number of years but last summer we had an unusual time with a pair of nesting Mountain Bluebirds in Box 1008 about 5 miles northeast of Wawanesa. This box was first checked on June 1st and the male was so tame one could touch it while inspecting the box which contained 3 eggs. The next

week we went back and took some 12 slides with the closeup lens when it was even tamer than the week before, as it was snapping up black flies or sand flies (which can kill the nestling); it also hovered for insects at my feet. In contrast, the female never came nearer than two fence posts away at any time.

On June 22 the young had flown to nearby aspen woods and when I went to the box and tapped on it the male came from the trees and posed for some friends that wanted to get pictures of it. On July 27 the box was checked and 3 young were in it about a week old; the male was just as tame as ever so I took some movie film of it. On August 1st it was checked again after some very hot days in the 90's and the young were all dead. There had been some grading machinery on the road and this with the heat could have disturbed the female at a critical time. — *Ed Robinson,* Box 42, Wawanesa, Manitoba. R0K 2G0

JOE, THE BALTIMORE ORIOLE

On July 15, 1975, my brother Eric and I caught a young Baltimore (Northern) Oriole with an injured wing. He was soon devouring grasshoppers and berries. He was kept in a bird cage during the night and, once his wing began healing, was allowed to fly around the room. The young oriole could be handled by us easily. When we were feeding him, he would lower his wings, shake them and make a throaty sound that young birds produce to get food from their parents. Sometimes we would just leave a jar of stunned grasshoppers open and let him take his pick. On August 1, when our family was visiting Katepwa, we released him. We saw him frequently after his release and could call him by a simple whistle. — *Tony Lang,* 65 Bobolink Bay, Regina. (Age 14)

Joe (front and centre).

30 Years Ago

The following excerpt is from the April-June, 1946, *Blue Jay*. Mrs. Priestly, first editor of the *Blue Jay*, died while her 15th issue was at the printers:

"The death of Isabel M. Priestly on April 23, 1946, will come as a shock to many of the 'Blue Jay' subscribers. As editor of the magazine, Mrs. Priestly acquired a wide circle of naturalist friends in both Canada and the United States.

"Her death came as a great shock to all of us for, as far as we knew, she had always enjoyed good health. As yet we can scarcely realize that she has left us.

"The first issue of the 'Blue Jay' was published in the fall of 1942, when Mrs. Priestly took the lead in organizing the Yorkton Natural History Society, of which she was president until the time of her death. Although the Yorkton Society has received credit for the fine response to the 'Blue Jay', it was Mrs. Priestly who compiled the material and did the large percentage of the work. In addition to the correspondence handled by the secretary, Mrs. Priestly answered as many as a hundred letters each month. She was the naturalist friend and consultant of scores of small boys and girls. No inquiry was too small to receive her prompt attention and wise counsel.

"The service she rendered to the cause of natural history in the province will be remembered for many a day by her fellow naturalists. As time passes we will remember her keen enthusiasm which stimulated a wide interest in the study of natural history, and all those who had the pleasure of knowing her will feel her passing as a decided personal loss.

"Mrs. Priestly was born in Newbury, Berks., England, on July 23, 1893. Previous to her marriage in 1918, she had been studying for a botanical research degree, and had studied botany in England, Germany and Switzerland. Following residence in Winnipeg and Calgary, the family moved to Yorkton in 1935.

"Besides her husband, Mrs. Priestly is survived by her daughter, Diana, and two sons, Frank and Michael."

GREAT GRAY OWL INFORMATION

A study is currently in progress to determine the historical and present status of the Great Gray Owl in North America. Any information regarding sight records or possible breeding occurrences of the Great Gray Owl is urgently required. Your co-operation will be gratefully acknowledged. Please write to: M. Collins, Department of Zoology, University of Manitoba, Winnipeg, Manitoba, Canada. R3T 2N2

SNHS — Summer Meeting

Cypress Hills Provincial Park.
June 11-13, 1976.
See newsletter for details.

GRASSLAND PARK PUBLIC HEARINGS

Now that the Information Meetings are over, members are urged to watch for the dates of Public Hearings on the proposed Grassland National Park in Southern Saskatchewan. Those in favour of the park appeared to be in the minority at many of the Information Meetings. You may make your views known verbally or in writing at the Public Hearings.

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